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Fetal Infant Mortality Review

City of Milwaukee Health Department
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Designed by Lisa Moy/Moy Creative

FETAL INFANT MORTALITY REVIEW

REPORT TO THE CITY OF MILWAUKEE

2002-2004 INFANT MORTALITY

2003-2004 FETAL MORTALITY

Milwaukee Healthy Beginnings Project

HRSA Health Resources and Services Administration Maternal and Child Health Bureau

Think Health Act Now! City of Milwaukee Health Department

CITY OF MILWAUKEE HEALTH DEPARTMENT

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FROM THE COMMISSIONER OF HEALTH

Dear Friends:

African American babies in Milwaukee die at a rate three times higher than White babies. In the 2003 Big Cities Health Inventory, Milwaukee's infant mortality rate ranked a poor 40th among the 50 largest cities in the U.S. Infant mortality in Milwaukee is worse than in countries such as Cuba, Chile, Poland, Costa Rica and Kuwait. This report provides details about this persistent divide in health among our city's most vulnerable residents. It describes who has been impacted by this public health crisis, and attempts to answer the question, of "why?". You will feel the pain in the words of mothers who have lost their children.

Infant mortality is a public health crisis in Milwaukee. It is a crisis that has gotten the attention of politicians, policy makers, and health and social service professionals not just in our city but across the country. Infant mortality is a barometer that the world uses to measure the health of a community. If a community can reduce infant mortality, other improvements in health and well-being will follow. This is because many of the roots of infant mortality are interwoven with important social and economic factors like housing, education and poverty – as well as factors such as family values, intergenerational issues, and racism – all of which affect multiple other important health outcomes in a city or region.

Reducing infant mortality in Milwaukee will require a community-wide and community-binding approach. The recommendations put forth in this report represent the expertise and community wisdom of our dedicated Fetal Infant Mortality Case Review Team. This Team has carefully and sometimes tearfully reviewed each and every death and has listened to the stories from parents and families. The Team's recommendations cross agency, governmental and community lines. There are agency recommendations at all levels, from specific groups and agencies to health and social-service systems, to the larger legal and policy level. Some recommendations will require critical community-wide dialogue about difficult issues such as racism and quality of care.

As Commissioner of Health for the City of Milwaukee, reducing health disparities, especially the infant mortality rate, remains my top public health priority. Together we can – and we must – find a way to address this crisis. I ask that all stakeholders join me in this fight to stop all preventable infant deaths in Milwaukee.

Sincerely,

Bevan K. Baker, CHE
Commissioner of Health

FROM THE MILWAUKEE HEALTHY BEGINNINGS PROJECT

Dear Milwaukee Community,

The motto of the Milwaukee Healthy Beginnings Project (MHBP) is "Everybody wants to have a healthy baby!" This report gives details about the lives and deaths of Milwaukee's babies. It tells us that the number of babies dying is more often from communities of color. It says that Milwaukee's rate of infant death has not changed in the last 20 years. It says that Wisconsin is now the worst state in the nation reporting race-specific infant mortality data. It asks that Milwaukee own up to its history of disenfranchisement and listen to mothers and families as they try to live and prosper in Milwaukee.

MHBP has funded FIMR research for over seven years. It has done so to show Milwaukee that fetal and infant death is an issue of major importance. These deaths shine a light on our problems and make us own up to them. We cannot change what we do not know.

Change needs to occur on many levels. These changes need to happen in our neighborhoods, in our city systems, in our healthcare providers and in ourselves. All women, especially women of color and their families need to receive consistent high quality healthcare. The MHBP asks that government, healthcare providers, the media and you work with us, to assure that women and their families get not only the healthcare they deserve, but the support and assistance of this city. MHBP families serve as role models and provide leadership to the community in demonstrating positive health outcomes. The data from MHBP documents the success of those families that participate in the Project.

Read this report and change what you can. Voice your concerns to whoever will listen in order to increase the level of change. No infant should die because of race, economic circumstances, education, risky behaviors by parents, or a culturally inappropriate health care system. I repeat "NO INFANT SHOULD DIE!!"

Sincerely,

Patricia McManus
Project Director

TABLE OF CONTENTS

DEFINITIONS

External Causation: refers to a category of death which includes motor vehicle accidents, mechanical or positional asphyxiations (entrapments), smoke inhalation or drowning

Fetal Death: a **fetal death** or **stillbirth** is "a fetus which does not breathe, or show other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of the voluntary muscles." By Wisconsin statute, a stillbirth of at least 20 weeks gestation or 350 grams must be reported.

Hispanic: refers to the mother's Hispanic ethnicity on a birth certificate, (includes all races)

Infant: a child less than one year of age

Infant Death: a child death occurring before a child's first birthday if the child was born alive, without regard to gestational age or weight

Infant Mortality Rate: the number of infant deaths per 1,000 live births
Formula: Infant Mortality Rate = # of infant deaths x1000/ # of live births

Infection: refers to a category of death where the cause of death is found to be bacterial or viral in nature, such as pneumonia

Low Birth Weight (LBW): refers to birthweight of less than 2500 grams (5.5 pounds)

Non-Hispanic Black: refers to the mother's race and Hispanic ethnicity on a birth certificate

Non-Hispanic White: refers to the mother's race and Hispanic ethnicity on a birth certificate

Perinatal Insults: refers to a category of death where the infant is born full term and cause of death is a complication of labor and delivery or as a result of a maternal condition

Preterm Births: a situation when infants are born before 37 weeks of gestation

Prone Sleep Position: when an infant is put to sleep on his/her stomach

Rates: use of a base such as 1,000 or 10,000 or 100,000 to standardize comparisons

Rolling Average: a method used to adjust data to correct for year to year differences that may not be statistically different. The 1st point is equal to the average of year 1 + year 2 + year 3; the 2nd point is equal to the average of year 2 + year 3 + year 4; and so on.

Sudden Infant Death Syndrome (SIDS): refers to the sudden death of an infant where no cause of death can be found, and after an autopsy and death scene investigation

Sudden Unexpected Death in Infancy (SUDI): refers to the sudden unexpected death of an infant where no cause of death can be found after an autopsy and death scene investigation with one or more additional factor(s) present; such as bed-sharing or prone sleep position

Supine Sleep Position: when an infant is put to sleep on his/her back

Very Low Birth Weight (VLBW): refers to a birthweight of less than1500 grams (3.3 pounds)

ABOUT THIS REPORT

Milwaukee's Fetal Infant Mortality Review is a project of the Milwaukee Healthy Beginnings Project (MHBP), funded by the Black Health Coalition of Wisconsin, through a U.S. Health Resources and Services Administration Healthy Start grant. FIMR findings and recommendations are used by the City of Milwaukee Health Department, the Milwaukee Healthy Beginnings Project, the State of Wisconsin, and by other agencies and policy makers in an effort to reduce infant mortality and eliminate the racial and ethnic disparity in infant mortality.

This Fetal Infant Mortality Review (FIMR) Report to the community summarizes what is known about factors that contribute to Milwaukee's high number of stillbirths and infant deaths. Through a case review process, an analysis is done on all infants who die before their first birthday. FIMR's Case Review Team is a diverse group of health and social service professionals and community members who review the life and death circumstances of infants who died in Milwaukee. The team seeks to identify each factor contributing directly or indirectly to the infant's death, and to identify opportunities to improve our community's systems of services for pregnant women, infants and families with young children.

This report compares City of Milwaukee livebirths, City of Milwaukee infant deaths and stillbirths, and the infant deaths and stillbirths occurring in the 12 zip codes of the MHBP target area. 81 percent of infant deaths and 75% of fetal deaths occurred in these zip codes. City of Milwaukee livebirths were used as the basis for comparison in this report. This is the 4th report since FIMR began in 1995. Each report seeks to inform and encourage new and improved programs and policies to prevent fetal and infant deaths in our community.

REPORTING PERIOD...

This report covers infant deaths and births occurring in the City of Milwaukee in the years 2002-2004. The Fetal Death (stillbirth) analysis was done for the years 2003-2004. The Milwaukee Healthy Beginning Target Area is comprised of 12 City of Milwaukee zip codes. They are 53204, 53205, 53206, 53208, 53209, 53210, 53212, 53215, 53216, 53218, 53224 and 53233

DATA...

An understanding of the circumstances of an infant's death requires more than just the medical cause of death listed on a death certificate. FIMR involves review of birth records, medical care records (prenatal, labor and delivery, outpatient, pediatric), medical examiner and social service records, when available. Standardized interviews with the parents of the deceased are included, when possible. Information presented in this report comes from all of these sources, but is only presented in aggregate fashion to protect the privacy of affected families. Data and graphs presented in this report are based on these abstracted records, unless otherwise indicated.

FIMR is authorized to obtain data through a Memorandum of Understanding between the City of Milwaukee Health Department and the State of Wisconsin, Department of Health and Family Services. The Memorandum of Understanding allows FIMR to conduct a public health study of infant mortality in the City of Milwaukee. The FIMR Project also has Internal Review Board (IRB) approval from Children's Health System.

Birth certificate and death certificate information were obtained from the City of Milwaukee, Vital Statistics Office, and the State of Wisconsin, Bureau of Health Information. Rates were determined by comparing City of Milwaukee livebirths to City of Milwaukee infant deaths/fetal deaths or MHBP Target Area livebirths to MHBP Target Area infant deaths/fetal deaths.

Case review information was compiled from multiple data sources. Information is missing from records, in some cases. In this report, graphs are labeled with the denominator (N=) out of a total number of 389 City of Milwaukee infant deaths or 140 fetal deaths. The Milwaukee Healthy Beginning Target Area had N=317 for infant deaths and N=118 fetal deaths. Risks were determined by calculating rates comparing livebirths to infant deaths or stillbirths.

RACE...

Use of racial data in reporting health parameters and health status is controversial because its relevance is often not understood. Other factors, such as poverty, job availability, economic status, access to services as well as family and cultural traditions, may be more pertinent to an understanding of health outcomes. These data are most often not available.

Although racial data is part of birth certificate information, the classification of race is often not precise. The infant's race was based solely on the mother's race. In this report, the following race/ethnicity definitions have been used: Black = Black race, Non-Hispanic ethnicity; White = White race, Non-Hispanic ethnicity; and Hispanic = includes all race classifications, Hispanic ethnicity. We realize that generalization about racial and ethnic designations may be perceived as insensitive. However, these racial and ethnic designations are used by the State of Wisconsin, Bureau of Health Information, on both birth and death certificates and fetal death reports.

Despite the recognition that racial data may be misleading, it has been included because racial data has been used to define both City of Milwaukee and State of Wisconsin health outcome goals. Racial data may help focus resources on specific geographies and allow for more culturally appropriate intervention strategies.

CONFIDENTIALITY...

Records are treated with absolute confidentiality. Records are kept in locked file cabinets and are available only to FIMR staff. Case summaries presented to the Case Review Team are stripped of individual identifiers, including the names of providers and institutions involved in the family's care. All Case Review Team members are required to sign a statement of confidentiality for case review proceedings and to refrain from case discussions outside the team. Only aggregate data is released, and aggregate data is censored if it might permit identification of an individual.

INDICATOR COMPARISONS

Infant mortality indicators compared over a five year period, 2000-2004.

2000-2004 CITY OF MILWAUKEE HEALTH DEPARTMENT STATISTICS	2000	2002	2004
Percent of total births to mothers who smoked during pregnancy	16.1%	13.4%	12.2%
Percent of total births to mother who start prenatal care in the 1st trimester	75.2%	75.4%	79.6%
Percent of total births to teens <20	19.1%	18.7%	17.0%
Percent of total teen births <20 years with <12 month interval between births	6.8%	5.4%	3.6%
Percent of all births <12 month interval since last pregnancy	2%	1.8%	2.1%
Percent of low birthweight, <2500g (5# 5oz)	10.2%	9.3%	9.9%
Percent of preterm births, <37 weeks gestation	10.7%	10.3%	11.0%
NUMBER OF BIRTHS			
Overall	11,073	10,742	10,923
Non-Hispanic Black	5,097	4,834	4,899
Non-Hispanic White	3,636	3,267	3,179
Hispanic	1,768	2,105	2,244
Other	572	536	601
INFANT MORTALITY RATE			
Overall	11.5	12.4	12.0
Non-Hispanic Black	16.1	19.0	19.4
Non-Hispanic White	5.2	5.5	5.3
Hispanic	6.2	9.0	4.9
Other	7.0	5.6	11.6

Source: City of Milwaukee Health Department, State of Wisconsin, DHFS-WISH

OVERVIEW

CITY OF MILWAUKEE DATA - INFANT MORTALITY RATES:
(Deaths per 1000 livebirths):

2004	
City of Milwaukee	12.0
Wisconsin	6.0
United States	6.9 (2003)

In 2004 the Wisconsin Medical Journal reported that Wisconsin had slipped to the worst state (#40) in the country among the 40 states that report race specific infant mortality data.[1]
In 2003, the Big Cities Health Inventory reported that the infant mortality health disparity of African Americans as compared to Whites ranked Milwaukee as the 4th worst among 16 US cities reporting such information.[2]

CITY OF MILWAUKEE: 1994-2004
City of Milwaukee Health Department Data
(2004 population: 554,965) (Official Census Estimate)
(1994 population: 629,296) (Official Census Estimate)
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CITY OF MILWAUKEE: 1994-2004
(2004 population: 554,965)

	1994-2004
Total Population:	11.8% decrease
Births:	7% decrease
White births:	from 37.9% to 29.1%
Black births:	from 47.7% to 44.9%
Hispanic births:	from 10% to 20.5%
Births to Unmarried Women:	from 58% to 60.9%
Prenatal Care initiated in First Trimester:	from 72% to 79.6%
Preterm Births:	from 9.8% to 9.4%
Low Birthweight Infants:	from 10.5% to 9.9%
Smoking during Pregnancy (self-report):	from 22.9% to 12.2%

POVERTY IN MILWAUKEE

In August 2005, the U.S. Census Bureau released a report ranking Milwaukee the nation's 7th worst city for percentage of families living in poverty (26%)[3]. The status of children is even worse. 41% of children residing in the city live below the poverty level, the fourth worst city in the nation[4]. Poverty contributes to Milwaukee's significant racial/ethnic disparities in infant mortality, unemployment and underemployment, teen births and incarcerations.

MILWAUKEE COMPARED TO WISCONSIN AND U.S.

INDICATOR	MILWAUKEE	WISCONSIN	US
Children <18 living in poverty	41% (2004)[3]	14%[3]	18.4%[3]
Children living in single-parent households	52%[4]	23%[4]	26%[4]
Children living in families where no parent has a full-time, year-round job	50%[4]	24%[4]	32%[4]

CITIES WITH THE HIGHEST POVERTY RATE FOR CHILDREN IN 2004[3]

	CITY	POVERTY RATE
1.	Atlanta	48.1%
2.	Detroit	47.8%
3.	Long Beach, CA	45.2%
4.	**Milwaukee**	**41.3%**
5.	Miami	41.3%

KIDS COUNT 2005[4]

PROFILE OF MILWAUKEE, WI
KEY INDICATORS: 2002
MILWAUKEE RANKINGS (compared to 50 major US cities)
(Ranking: 1 is best, 50 is worst)

	MILWAUKEE	WISCONSIN	TOP 50-CITY AVERAGE	CITY RANK
Percent of total births to teens	18.7	9.5	12.7	49
Percent of teen births to women who were already mothers	25.8	19.5	21.8	44
Percent of total births to unmarried women	60.3	30.0	43.9	43
Percent of total births to mothers with less than 12 years of education	35.8	16.1	27.3	43
Percent of total births to mothers receiving late or no prenatal care	5.6	3.2	4.9	32
Percent of total births to mothers who smoked during pregnancy	13.5	14.9	8.8	32
Percent low birthweight births (less than 5.5 lbs)	9.3	6.6	8.8	33
Percent preterm births (less than 37 weeks gestation)	14.0	10.9	13.0	37

HOW DOES MILWAUKEE'S INFANT MORTALITY RATE RANK COMPARE TO THE INFANT MORTALITY RATE OF OTHER COUNTRIES? [5]

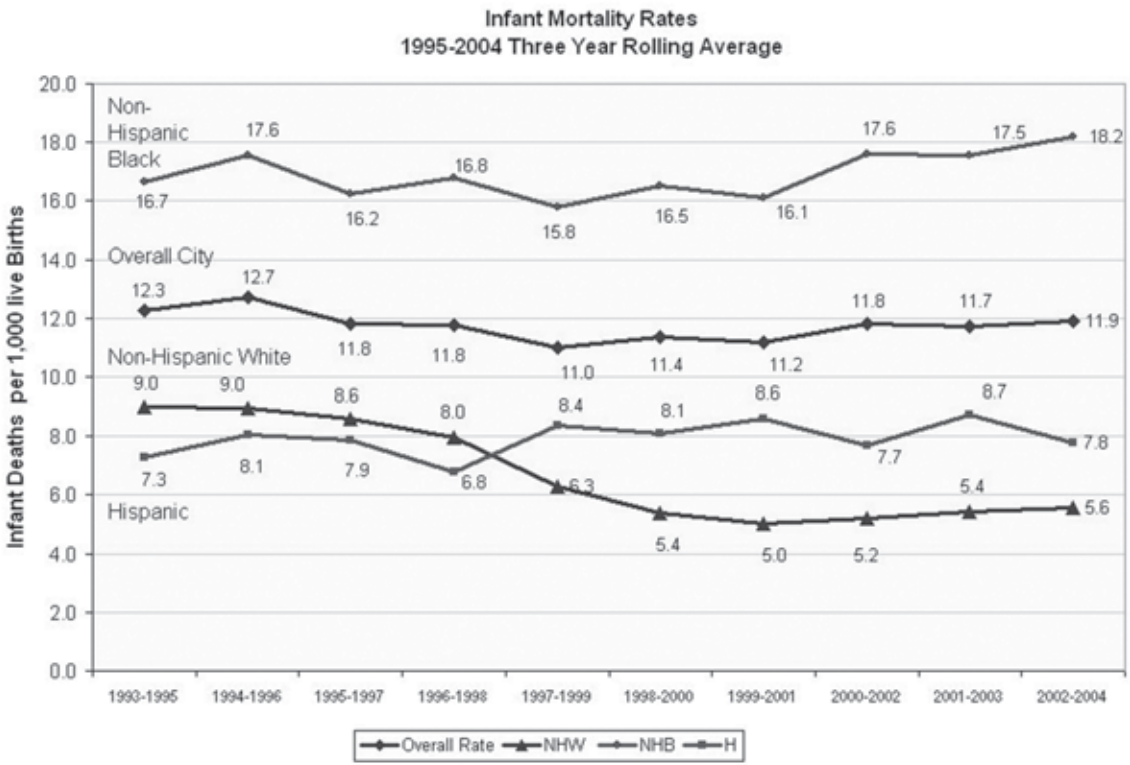
2004 INFANT MORTALITY RATES, by COUNTRY

RANK	COUNTRY	IMR RATE
1	Singapore	2.28
2	Sweden	2.77
3	Hong Kong	2.97
4	Japan	3.28
5	Iceland	3.31
6	Finland	3.59
7	Norway	3.73
8	Malta	3.94
9	Czech Republic	3.97
10	Germany	4.2
11	France	4.31
12	Macau	4.39
13	Switzerland	4.43
14	Spain	4.48
15	Slovenia	4.5
	WISCONSIN WHITE	4.5
16	Denmark	4.63
17	Austria	4.68
18	Belgium	4.76
19	Australia	4.76
20	Canada	4.82
21	Luxembourg	4.88
	MILWAUKEE HISPANIC	4.9
22	Netherlands	5.11
23	Portugal	5.13
24	United Kingson	5.22
	MILWAUKEE WHITE	5.3
25	Ireland	5.5
26	Greece	5.63

RANK	COUNTRY	IMR RATE
60	Sri Lanka	14.78
61	United Arab Emirates	15.06
62	Maruitius	15.57
63	Argentina	15.66
64	Russia	16.01
65	Jamaica	16.63
66	Panama	17.14
67	Bahrain	17.91
68	Jordan	18.11
69	Malaysia	18.35
	WISCONSIN BLACK	19.2
70	Qatar	19.32
71	Georgia	19.34
	MILWAUKEE BLACK	19.6
72	West Bank	20.16
73	Oman	20.26
74	Thailand	20.83
75	Bulgaria	21.31
76	Mexico	21.69
77	Colombia	21.72
78	Bosnia and Herzegovina	22.09
79	Solomon Islands	22.31
	Albania	22.31
80	Venezuela	22.99
81	Gaza Strip	23.54
82	Suriname	24.15
85	Ecuador	24.49
83	Armenia	24.16
84	Philippines	24.24
86		

MILWAUKEE'S INFANT MORTALITY RATES BY RACE AND ETHNICITY (three year rolling averages)

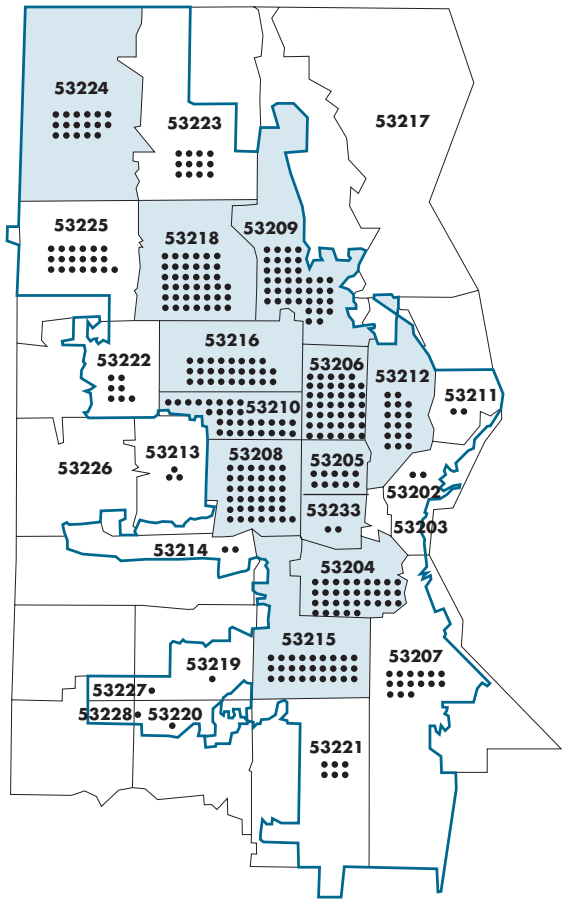
This graph displays the three year rolling average infant mortality rates for the City overall and by race and ethnicity. The only statistically significant change in rates between 1993 and 2004 is the decrease among Non-Hispanic White infants.



MAP OF MILWAUKEE INFANT MORTALITY...

This map details infant deaths by Milwaukee zip codes. This dot density map shows the number infant deaths per zip code. 53206 has the highest rate of infant deaths, followed closely by 53209, 53218, 53208 and 53210. The table shows number of births and infant mortality rates per zip code for 2002-2004. Rates have only been calculated if the combined number of livebirths in a zip code was greater than 300. The shaded zip codes show the Milwaukee Healthy Beginnings target area.

ZIP CODE	2002-2004 LIVEBIRTHS	# OF INFANT DEATHS	2002-2004 RATE
53202	365	2	5.5
53203	24	0	
53204	3206	32	10
53205	685	10	14.6
53206	2011	41	20.4
53207	1504	15	10
53208	2156	37	17.2
53209	2055	38	18.5
53210	1786	28	15.7
53211	425	2	4.7
53212	1683	20	11.9
53213	301	3	10
53214	495	2	4
53215	3660	27	7.4
53216	1698	26	15.3
53217	113	0	
53218	2243	39	17.4
53219	762	1	1.3
53220	475	1	2.1
53221	1160	6	5.2
53222	1018	7	6.9
53223	845	12	14.2
53224	1075	17	15.8
53225	1376	19	13.8
53226	140	0	
53227	210	1	
53228	157	1	
53233	463	2	4.3



FROM OUR MOTHERS...

The facts and figures of infant mortality do not do justice to the pain of losing a child. In the midst of their grieving, mothers suffering this loss have shared their stories through community interviews. Each has relived her tearful ordeal in hopes of giving future babies a better chance of living through their first birthday. Shared here are mothers' perceptions of pregnancy and assessment of their care. Collectively, their statements have revealed misconceptions of medical care and identified potential areas for improving the experience and outcomes for these mothers. 26.7% of mothers were interviewed.

"I wish I'd have been told more about contractions and signs of labor," replied one mother. Symptoms of preterm labor (PTL) were experienced by 42% of interviewed mothers, but nearly 16% of them didn't recognize them as signs of PTL. One mother said, "I didn't call my doctor right away because I thought maybe I had a urinary tract infection and the cramping was normal." As a part of pregnancy education every mother needs to be taught the signs of PTL, and every healthcare provider needs to remember that teaching is more than telling. The mom needs to be able to recognize the signs on her own and know what action to take.

A second and more difficult problem is getting mothers' concerns across to the right people when she calls the hospital. 13.5% of mothers with symptoms of PTL were delayed in coming to the hospital by staff, or their concerns were dismissed by staff. It isn't clear whether mothers are having difficulty communicating their concerns, or whether they are being prevented from talking with a doctor or nurse trained in obstetrics by the triage system. Part of PTL education may have to be teaching mom how to be an advocate for herself, and to be adamant about having her concerns addressed by the right people.

"I wish he would've run some tests to make sure I wouldn't go into preterm labor." replied another mother. Unfortunately, PTL is not well understood by the medical community. It cannot be predicted or prevented with any relia-

bility. Statements like this demonstrate the misconceived notion of infallible medicine. "When they did all those ultrasounds, why couldn't they see if something was wrong?" asks a mother. Great strides in neonatal care and medical technology have been made recently, but we are still bound by limits, and mothers need to be made aware of this ahead of time.

"I don't understand why they did not try to resuscitate her. I feel the doctors did not bother to save my baby," laments a despondent mother. Almost 10% of moms shared this sentiment. The reality of prematurity is that saving an infant born before 24 week's gestation is often beyond our capabilities; they are too underdeveloped. This can be extremely difficult for a mother to understand when she is holding a perfect, tiny, beautiful baby with a normal outward appearance. "She looked fine to me… why was [she] not able to survive?"

The misconceptions contributing to the notion of infallible medicine are further facilitated by ineffective communication. The difficulty of conveying medical knowledge to the lay person is apparent. Nearly 45% of mothers did not completely understand the circumstances of her baby's death, clearly indicating the need for better communication. Healthcare providers have a responsibility, not just to inform their patients, but to teach, and to confirm understanding. Often patient understanding is assumed from a deaf nod or a lack of questions. "Doctors tend to think you know more than you really do." recounts a mother.

Moreover, knowing the right questions to ask can be difficult for the mother, especially if she is already feeling marginalized for being poor, young, a minority, or on government aid. One mother said, "I think because of the insurance type, T19, we were treated like underclass citizens." It's important to remember that, unfortunately, there are age, race, educational, and financial disparities associated with infant mortality. Whether it is realized or not, people tend to view each other through these lenses. One teen mother said "I think they felt I was a dumb young girl who didn't care about her baby because I didn't have prenatal care." These assumptions and biases set up barriers to open communication before a conversation even begins.

The interviews explicitly asked mothers "What would have made this experience better for you" and mothers responded earnestly. Many wanted better communication and understanding for her situation, and more information on PTL. Mothers also identified false perceptions that are leading to misunderstanding and miscommunication between healthcare providers and patients. If we carefully consider and incorporate these perspectives and suggestions, and if we work together with the mothers in our community we can improve the outcomes and experiences of pregnancy. Report prepared by Jessica Lambert, MCW Medical Student, AHEC, Summer 2005

From FIMR's Case Review Team...

Infant mortality continues to be a significant problem in Milwaukee. Traditional approaches to preventing fetal and infant death have been directed toward women who present in labor, but what other factors may be important before that time? A successful pregnancy, resulting in a healthy term infant, requires a healthy mother. Work by Michael Lu, MD and others has considered a life course perspective. Briefly, a woman's reproductive health is determined by her life experiences. The accumulation of adverse life events adversely affects the woman's ability to have a good pregnancy outcome. James Collins, MD has studied the effects of racism on pregnancy outcome. His work indicates that even a woman's perception of racism is enough to have a negative impact on her pregnancy outcome. We are developing a better understanding of the relationship between social environment and health, but more work is needed. Preventing stillbirth and infant death is a complex problem and requires a complex solution. At the level of the individual, individuals must assume some responsibility for their health. This responsibility should include health-seeking behavior as well as self-advocacy. Since individuals live in communities and society, both of which can influence the individual, the role that the social context plays should be explored. At the level of the community, communities should be able to assess their strengths and weaknesses and find a voice that is willing to explore relationships that address the identified needs of the community. Within the medical community, greater sensitivity, awareness, and resources are needed to make quality and appropriate health care accessible to all. At society's level, society should address the underlying factors of racism, poverty, and crime that may contribute to chronic stress and poor birth outcomes.

Kyle O. Mounts, MD Member of FIMR Case Review Team

RECOMENDATIONS FROM THE MILWAUKEE CASE REVIEW TEAM

Milwaukee has moved from a city that had one of the nation's lowest infant mortality rates to one of the highest in a span of 20 years. Action is needed now to address this tragedy. In order to tackle the many issues that contribute to disparity and Milwaukee's high infant mortality rates, there is a need for organizations and individuals to take ownership of the Case Review Team (CRT) recommendations. Organizational leaders and policy makers at a high level and the affected community will need to come forward and be actively engaged in this process.

ISSUES (in alphabetical order)

Data

A core principle of Healthiest Wisconsin 2010 is that better public health decisions will be made if they are based on reliable data. Data driven decision-making is imperative to the improvement of birth outcomes in Milwaukee. Timely and relevant health data pertaining to women and children should be available for analysis and decision-making. Included in Wisconsin State Statutes are provisisions for the collection and maintenance of such data. Wisconsin Statute.
§ 250.04(3) states that the Department of Health and Family Services "shall establish and maintain surveillance activities sufficient to detect any occurrence of acute, communicable or chronic diseases and threat of occupational or environmental hazards, injuries or changes in the health of mothers and children." There is a need for both expanded access and timely release of data that includes:

- Medicaid claims data;
- Prenatal Care Coordination information from risk assessment questionnaires;
- Vital records data
- Reimbursement data from clinicians ;
- Information on the number of physicians in Milwaukee who serve and treat Medicaid patients;
- Clinical care documentation data and registries;
- Managed care payment policies;
- WIC (Women, Infants and Children Supplemental Nutrition Program) data for information regarding nutritional services and referral to other agencies

Domestic Violence

Screening for domestic violence should be a standard of pre and postnatal care. Women are more likely to suffer from intimate partner violence and homicide during pregnancy than any other time of their life. As with mental health, improving the frequency of domestic violence assessments, increasing better referral resources and improving documentation by all health care providers is needed to address this problem. The American Medical Association recommends three basic questions for screening:

- Do you ever feel unsafe at home?
- Are you in a relationship in which you have been physically hurt or felt threatened?
- Have you ever been or are you currently concerned about harming your partner or someone close to you?

For more information, contact the Wisconsin Association for Perinatal Care.[8]

Fathers and the Family

We must encourage fatherhood initiative programs to involve men in their partners' pregnancies and their children's lives. Programs may provide incentives to encourage fathers to attend prenatal care appointments and fatherhood parenting classes, and to reduce environmental risks, i.e., exposure to secondhand smoke, or drug use. We must encourage a local fatherhood collaborative to provide therapeutic support to mutually share frustrations, successes and feelings about fatherhood. Assertive outreach programs should be targeted to at-risk populations and be designed to reach first time and expectant fathers.

Fetal Examination

Physicians and hospitals should implement best practice protocols for the management of any stillbirth or infant death greater than 20 week gestation. These exams should include external examinations, placental and cord analysis, photographs, X-rays, autopsies, and appropriate genetic testing. Follow-up testing also should be encouraged for women who have experienced a stillbirth or early loss. For more information, contact the Wisconsin Stillbirth Service Program.[11]

Fetal Movement

All pregnant women must be educated about what is appropriate fetal movement. Women need to know that a baby's movements do not stop right before birth. Babies should continue to move throughout pregnancy until delivery. One approach to teaching fetal movement is that women should be counseled to count 4 movements in 1 hour or 10 movements in 4 hours starting at 26 weeks gestation. The message should be clearly and consistently provided at each prenatal visit. A woman should know to contact her healthcare provider if she does not feel her baby move, and be able to talk to them personally.

Folic Acid

Any woman of child-bearing age, age 10-50, should be taking vitamins with folic acid before, during and after pregnancy. The benefits of this supplement have been well-established. For more information, contact the March of Dimes.[9]

Mental Health

Women and their families should receive depression and domestic violence screening at multiple points - preconceptionally, prenatally and during pediatric care visits - across the continuum, to ensure their ability to care for themselves and their families. Improvement in the frequency of mental health assessments, better and more referral resources and documentation by all healthcare providers are needed to address this problem. Several screening questionnaires are available. One of the screens recommended by the U.S. Preventive Services Taskforce consists of two questions (a positive answer to one or both suggests increased likelihood of depression):

- Over the past 2 weeks, have you felt down, depressed or hopeless?
- Over the past 2 weeks, have you felt little interest or pleasure in doing things?

For more information, contact the Wisconsin Association for Perinatal Care.[8]

Multidisciplinary Community Based Models of Care

Infant mortality rates have been successfully reduced in other cities, i.e., New York City has been frequently cited. The 2004 infant mortality rate for New York City was 6.16 as compared to Milwaukee's 2004 rate of 12. The non-Hispanic Black infant mortality rate was 11.6 as compared to Milwaukee's non-Hispanic Black infant mortality rate of 19.6. New York City prenatal care has been shifted to the public sector. In Milwaukee we have done the opposite, and moved virtually all care into the private sector. Whether the shift in service delivery from the public to private sector contributes to increased infant mortality remains unclear, as this is not the only factor that has changed in the last 20 years. However, there are many reasons why community-based multidisciplinary care models are more successful with certain populations. We must look at alternative private-sector multidisciplinary care models that are community-based, and have funding policies in place that support them. An example of such a model is midwifery clinics where care is much more holistic and often includes general and prenatal health counseling and education for the woman, her family and often the community. They actively work to prepare families for parenthood.

Preterm Labor

All pregnant women should know the signs and symptoms of preterm labor and what to do if they experience preterm labor. The March of Dimes[9] recommends that all pregnant women, their family and friends know the signs and symptoms of preterm labor. A woman should call her healthcare provider or go to the hospital right away if she thinks she is experiencing preterm labor. The signs of preterm labor include:

- Contractions (abdomen tightens like a fist) every 10 minutes or more often
- Change in vaginal discharge – leaking fluid or bleeding from the vagina
- Pelvic pressure – the feeling that the baby is pushing down
- Low, dull backache
- Cramps that feel like a period
- Abdominal cramps with or without diarrhea

Quality of Care

All women and their infants should expect and receive high quality care. Quality care standards should be consistent across providers, payer sources, race and ethnicity. An assessment of quality should be conducted by an objective party or group that includes consumers. A starting point could be publicly financed care. The assessment should explore incentives for the provision of quality care and positive health outcomes. Quality measures should be defined and incorporated into reimbursement policies and contracts.

Women of color particularly must be educated on what is involved in quality prenatal care and demand this care from their health care providers. Quality prenatal care includes respectful care from health care providers, routine laboratory testing, and appropriate screening and management for health conditions and mental health issues that impact on pregnancy. Comprehensive patient counseling should occur and be documented (including fetal growth and development, nutrition, substance use, preterm labor, fetal movement).[7]

Pregnant women should have a copy of their prenatal care records that can be carried on their person in the event of an accident or unexpected emergency. Portable prenatal records are available from the Wisconsin Association for Perinatal Care.[8]

Other quality care recommendations include:

- Monitoring systems to identify prenatal care providers who send their patients to an ER to deliver.
- Screening and management of maternal infections
- Screening and management of hypertension and diabetes
- Identification of previous poor pregnancy outcomes
- Systematic, ongoing assessments and documentation of all tobacco, alcohol, marijuana, cocaine and other drug use. Second-hand smoke exposure also should be discussed. Appropriate referral resources must exist for women with substance use issues.

Safe Sleep Environment

All health care providers, parents and other infant caregivers must be encouraged to follow the 2005 American Academy of Pediatrics (AAP) guidelines on Safe Sleep for infants. These are identified risk factors that are associated with Sudden Infant Death and asphyxiations. Additional information can be obtained from the American Academy of Pediatrics12 and the Wisconsin Infant Death Center.[13]

RECOMMENDATIONS TO REDUCE THE INCIDENCE OF SUDDEN INFANT DEATH SYNDROME

The American Academy of Pediatrics Task Force on Sudden Infant Death Syndrome has recently released its revised policy statement on Sudden Infant Death Syndrome and provided guidance on evidence based best practices to reduce the risk of SIDS. The following is a summary of the recommendations:

- Infants should be placed for sleep on their backs for every sleep. Side sleeping is not advised.
- A firm crib mattress, covered by a sheet is the recommended sleeping surface.
- Keep soft objects and loose bedding out of the crib. Pillows, quilts, comforters, sheepskins, stuffed toys and other soft objects should be kept out of an infant's sleeping environment. Loose bedding may be hazardous.
- Do not smoke during pregnancy. Avoid exposing an infant to second hand smoke.
- A separate but proximate sleeping environment is recommended such as a separate crib in the parent's bedroom. Bed sharing during sleep is not recommended. Bring your baby to bed to comfort or nurse, but return your baby to the crib for sleep.
- Consider offering a pacifier at nap time and bedtime: The pacifier should be used when placing infant down for sleep and not be reinserted once the infant falls asleep. It should not be coated with a sweet solution, should be cleaned often and replaced regularly. To establish a breastfeeding routine wait until the baby is one month old to offer the pacifier.

- Avoid overheating, the infant should be lightly clothed for sleep, and the bedroom temperature should be kept comfortable for a lightly clothed adult.
- No one should sleep with a baby on a couch or arm chair.
- Do not use home monitors as a strategy to reduce the risk of SIDS. There is no evidence that use of such home monitors decreases the risk of SIDS.
- Avoid commercial devices marketed to reduce the risk of SIDS. Although various devices have been developed to maintain sleep position or reduce the risk of re-breathing, none have been tested sufficiently to show efficacy or safety.
- Avoid flat spots on your baby's head. Encourage "tummy time." Avoid having the infant spend excessive time in car-seat carriers and "bouncers." Practice upright cuddle time. Place the infant to sleep with the head to one side for a week and then changing to the other.
- Make sure all who care for your baby (child care provider, relative, friend, babysitter) know and follow these strategies.

Seamless Systems of Care

Once a pregnancy is identified, care should begin immediately. Gaps need to be eliminated between an application for insurance and the initiation of care. Infants should have continuous care after delivery. Gaps exist for infants to see pediatrician after hospital discharge. Public and private insurers need to reorganize themselves in a way to better serve both providers and patients.

Smoking Cessation

Smoking during pregnancy is a major public health concern. According to the U.S. Public Health Service, if all pregnant women in the U.S. stopped smoking, there would be an 11% reduction in the number of stillbirths and a 5% reduction in the number of newborn deaths. Smoking during pregnancy can cause a baby to be born too soon and have a low birth weight. Smoking during pregnancy is a risk factor in placental abruptions and preterm rupture of placental membranes. Exposure to second-hand smoke increases the risk of asthma and ear infections in infants. To get help, call the Wisconsin Tobacco QUITLINE at 1-800-270-STOP. For more information, contact the March of Dimes[9] or the University of Wisconsin Center for Tobacco Research and Intervention.[10]

Finally, An Overarching Climate of Racism and Disenfranchisement

This issue cuts across all of the recommendations. It divides us all and dulls our ability to eliminate health disparities. All health care and social service providers must address issues of racism, stereotyping and disenfranchisement in their practices. Areas that need attention include direct patient services to families and organizational disregard. Many feel that disparity in infant mortality rates should be addressed in the framework of a civil rights issue. There must be a personal commitment to advocacy and respectful dialogue. Women and their families also need to be empowered and informed. Providers, community groups, government, CBO's and community members should come together for meaningful dialogue about racism and stereotyping in its many forms and subtleties. Dialogue is needed as a first step in changing our culture of intolerance and neglect. Each system should have an ongoing discourse to explore how social justice and disenfranchisement impacts services, providers, policies and procedures. For example, the Wisconsin Association for Perinatal Care has taken a leadership role in engaging other communities in this process through a program called a "Time to Talk", sponsored by the Madison YWCA. For more information, contact the Wisconsin Association for Perinatal Care.[8]

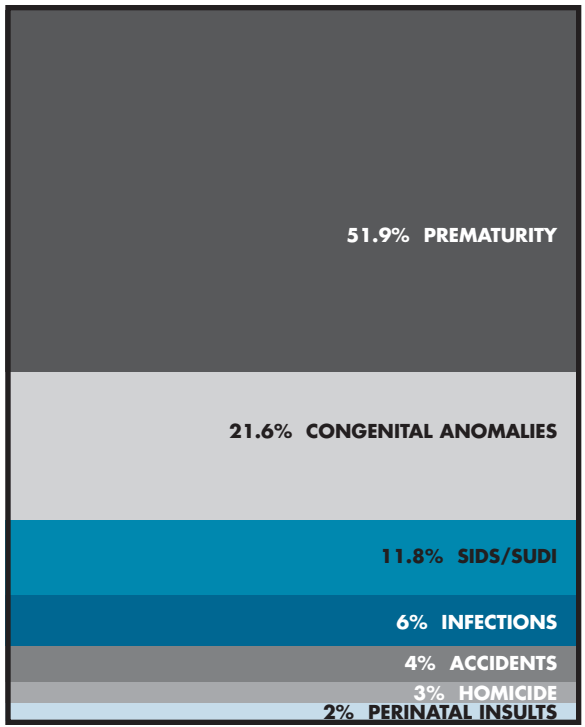
CAUSES OF INFANT DEATH...

The leading cause of all City of Milwaukee infant deaths in 2002-2004 was due to **Prematurity**, representing 51.9% of all infant deaths. This is an increase of 9.9% since the 2000-2001 report. Infant deaths due to prematurity may result from complications the mother experienced during the pregnancy, infections, lack of or inadequate prenatal care, or pre-existing medical problems.

The second leading cause of all City of Milwaukee infant death, representing 21.6% of all infant deaths, was Congenital Abnormalities. **Congenital abnormalities** include such conditions such as heart defects, brain anomalies or genetic syndromes.

The third leading cause of all City of Milwaukee infant death, representing 11.8% of all infant deaths, was **Sudden Infant Death Syndrome** (SIDS) or **Sudden Unexpected Death in Infancy** (SUDI). SIDS/SUDI was the 2nd leading cause of death in 2000-2001.

2002-2004 City of Milwaukee Infant Death Data Analysis N=389



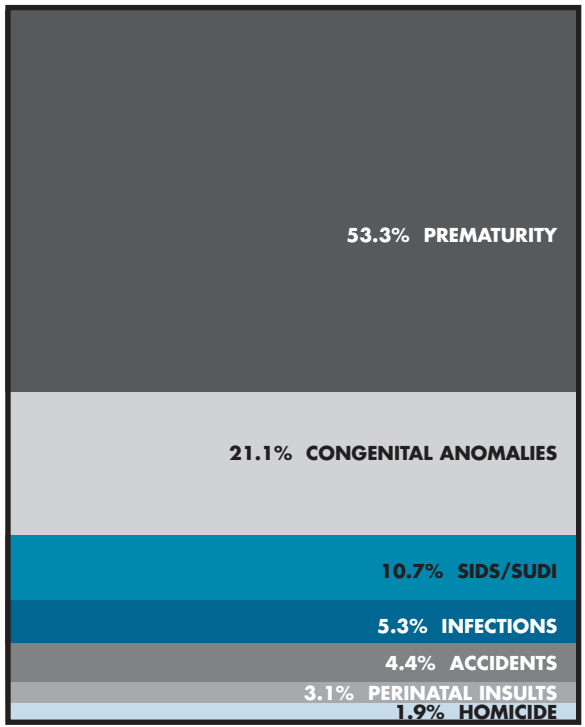
CAUSES OF MHBP TARGET AREA INFANT DEATH...

The leading cause all MHBP target area infant deaths in 2002-2004 was due to **Prematurity**, representing 53.3% of all infant deaths. This is an increase of 15.3% since the 2000-2001 report.

The second leading cause of infant death in the MHBP target area, representing 21.1% of all infant deaths, was **Congenital Abnormalities.**

The third leading cause of infant death in the MHBP target area, representing 10.7% of all infant deaths, was **Sudden Infant Death Syndrome** (SIDS) or **Sudden Unexpected Death in Infancy** (SUDI). SIDS/SUDI was the 2nd leading cause of death in 2000-2001 in the MHBP target area.

2002-2004 MHBP Target Area Infant Death Data Analysis N=317



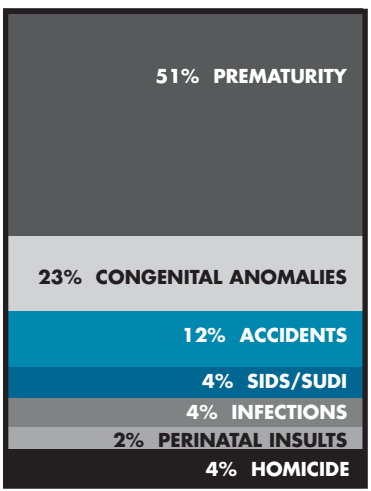
CAUSES OF CITY OF MILWAUKEE INFANT DEATH BY RACE/ETHNICITY...

Prematurity and **Congenital Abnormalities** were the leading causes of death for Blacks, Whites and Hispanics. **Prematurity** was the cause in 55% of all Black Infant Deaths, 51% of Hispanic Infant Deaths and 45% of White Infant Deaths.

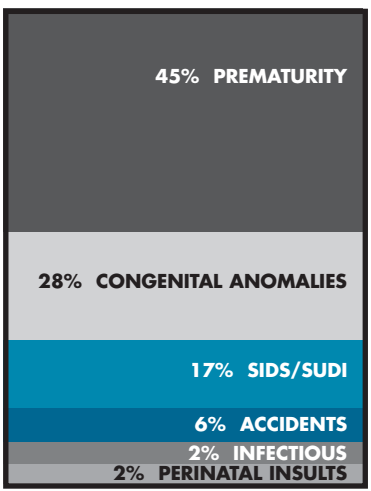
SIDS or SUDI was seen in 13% of Black infant deaths and 3% of Black infant deaths were due to **accidents** (mechanical or positional asphyxiation). Black infants had the highest percent (7%) of infant deaths due to **infection**. Over two-thirds of infant **homicides** during this time period were Black infants. **SIDS or SUDI** was seen in 17% of White infant deaths and an additional 6% were due to **accidents** (mechanical or positional asphyxiation). **SIDS or SUDI** was seen in only 4% of Hispanic infant deaths but an additional 12% of Hispanic infant deaths were due to **accidents** (mechanical or positional asphyxiation).

Other races were not shown as the number of deaths for 'Other Race' were too few.

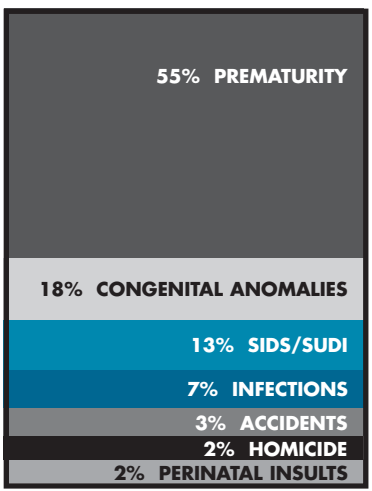
HISPANIC CAUSE OF INFANT DEATH 2002-2004 CITY OF MILWAUKEE INFANT DATA DEATH ANALYSIS N=52



WHITE CAUSE OF INFANT DEATH 2002-2004 CITY OF MILWAUKEE INFANT DEATH DATA ANALYSIS N=54



BLACK CAUSE OF INFANT DEATH 2002-2004 CITY OF MILWAUKEE INFANT DEATH DATA ANALYSIS N=265



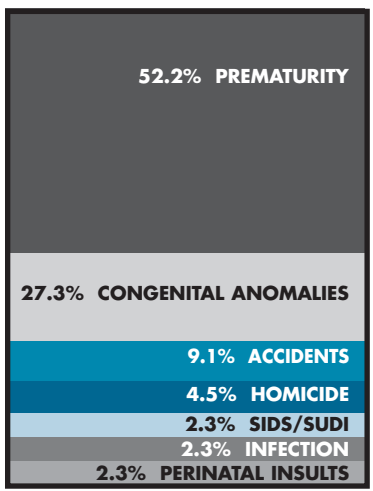
CAUSES OF MHBP TARGET INFANT DEATH BY RACE/ETHNICITY...

Prematurity and **Congenital Abnormalities** were the leading causes of death for Blacks, Whites and Hispanics. **Prematurity** was the cause in 56.3% of all Black Infant Deaths, 52.2% of Hispanic Infant Deaths and 45% of White Infant Deaths.

SIDS or SUDI was seen in 12.7% of Black infant deaths and an additional 3.3% of Black infant deaths were due to **accidents** (mechanical or positional asphyxiation). Black infants had the highest percent (7.3%) of infant deaths due to infection. 84% of these babies died of an infection after they were discharged from the hospital. Over two-thirds of infant **homicides** during this time period were Black infants. **SIDS or SUDI** was seen in 5% of White infant deaths and an additional 10% were due to **accidents** (mechanical or positional asphyxiation). **SIDS or SUDI** was seen in only 2.3% of Hispanic infant deaths and an additional 9.1% of Hispanic infant infant deaths were due to **accidents** (mechanical or positional asphyxiation).

Other races were not shown as the number of deaths for 'Other Race' were too few.

CAUSE OF INFANT DEATH - HISPANIC INFANTS 2002-2004 MHBP TARGET AREA INFANT DEATH DATA ANALYSIS N=44



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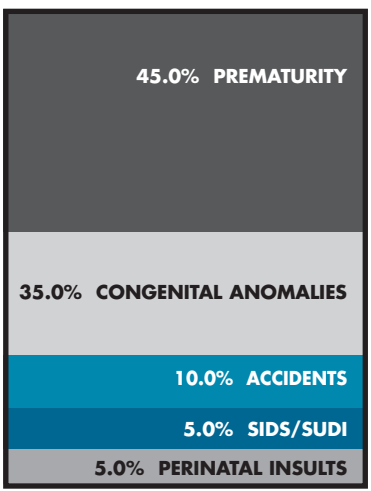
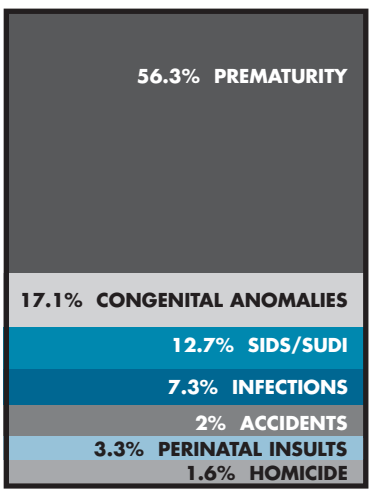


CAUSE OF INFANT DEATH - BLACK INFANTS 2002-2004 MHBP TARGET AREA INFANT DEATH DATA ANALYSIS N=245



MILWAUKEE LIVEBIRTHS, CITY OF MILWAUKEE INFANT DEATHS, AND MHBP TARGET AREA INFANT DEATHS OVER THE 2002-2004 PERIOD

Each set of graphs compares the proportion of total births and deaths to a health or social status indicator. These risk factors are known to have an impact on infant mortality.

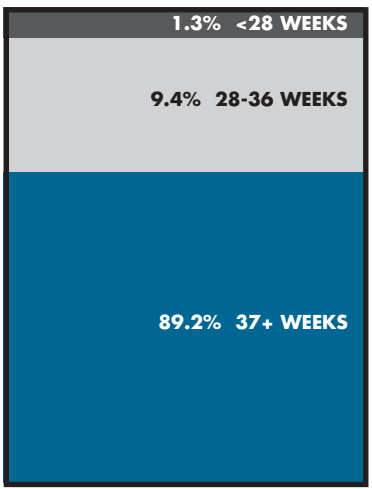
BY GESTATIONAL AGE

In the MHBP target area, 73.8% of the infant deaths were less than 37 weeks gestation. 73.6% of City of Milwaukee infant deaths and 10.7% of all City of Milwaukee livebirths had a gestational age under 37 weeks.

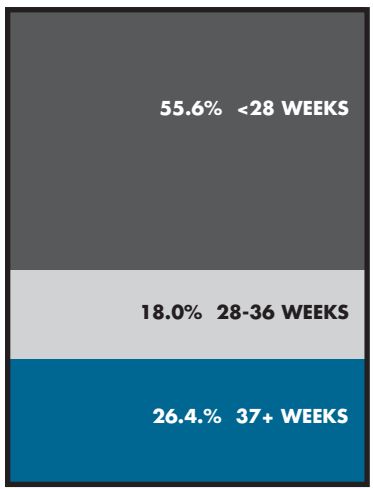
Wisconsin 2004 birth data showed that 10.4% of all births had a gestation less than 37 weeks. U.S. 2003 birth data showed that 12.3% of all births were preterm.

- A gestational age of less than 37 weeks in the MHBP target area increased the risk of infant mortality 22 times. This was the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to infant deaths).
- The literature shows that gestational age and birthweight (next graph) are the greatest predictors of an infant's survival.

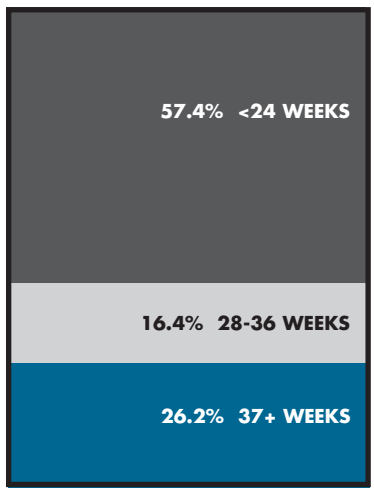
2002-2004 CITY OF MILWAUEE LIVEBIRTHS BY GESTATIONAL AGE N=32724



2002-2004 FIMR CITY OF MILWAUKEE INFANT DEATHS BY GESTATIONAL AGE N=389



2002-2004 MHBP TARGET AREA INFANT DEATHS BY GESTATIONAL AGE N=317



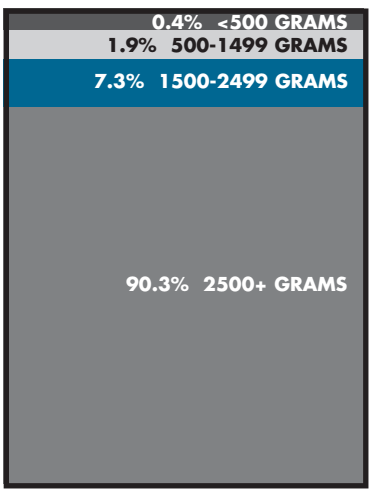
BY BIRTH WEIGHT

Of all MHBP target area infants who died, 74.4% were under 2500 grams. This is the same percent seen in City of Milwaukee infant deaths. 9.6% of all City of Milwaukee livebirths weighed less than 2500 grams (5.5 pounds).

Wisconsin 2004 birth data showed that 7.0% of all births had a birthweight less than 2500 grams. U.S. 2003 birth data showed that 7.9% of all liveborn infants weigh less than 2500 grams.

- A birthweight of less than 5 1/2 pounds in the MHBP target area increased the risk of infant mortality 24 times. In the City of Milwaukee overall, a birthweight of less than 5 1/2 pounds increased the risk of infant mortality nearly 27 times (rate determined by comparing livebirths to infant deaths).

2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY BIRTHWEIGHT N=32724



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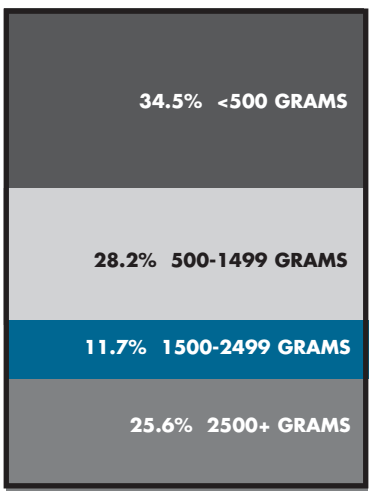

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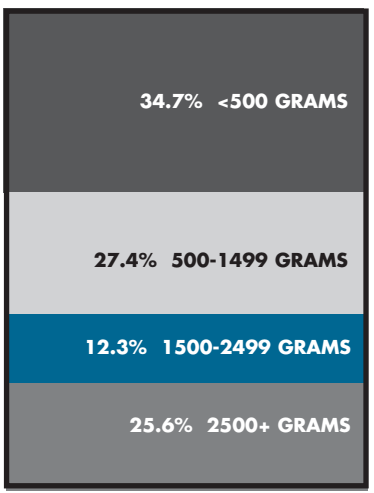


BY RACE/ETHNICITY

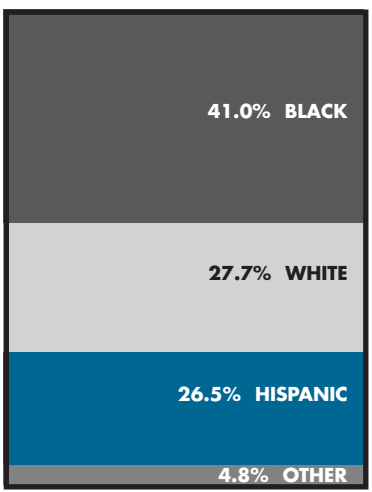
In the MHBP Target Area, Black women had 75.1% of the infant deaths, Hispanic women had 13.9% of the infant deaths and White women had 6.6% of the infant deaths.

In the City of Milwaukee, 41% of the livebirths and 68.4% of the infant deaths were to Black women; 27.7% of the livebirths and 13.8% of the infant deaths were to White women and Hispanic women had 26.5% of the livebirths and 13.3% of the infant deaths.

Wisconsin 2004 birth data showed that 77.3% of births were to White women, 8.4% to Hispanic women and 9.3% to Black women. U.S. 2003 birth data showed that 56.7% of births were to White women, 22.3% to Hispanic women and 14.1% to Black women.

- Black infants born in the MHBP target area were 3 times more likely to die than White infants and over 2 times more likely to die than Hispanic infants. This was the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to infant deaths).

2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY RACE/ETHNICITY N=32724



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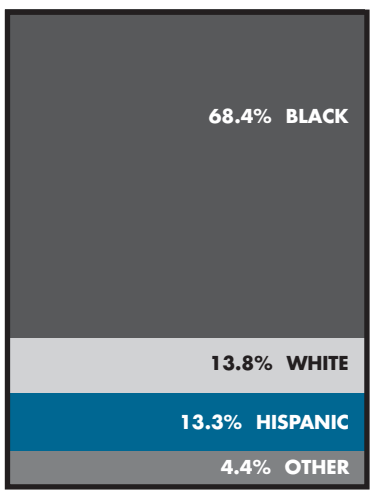
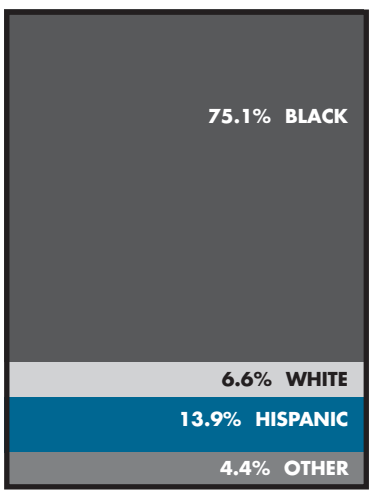


2002-2004 MHBP TARGET AREA INFANT DEATHS BY RACE/ETHNICITY N=317



BY MATERNAL AGE

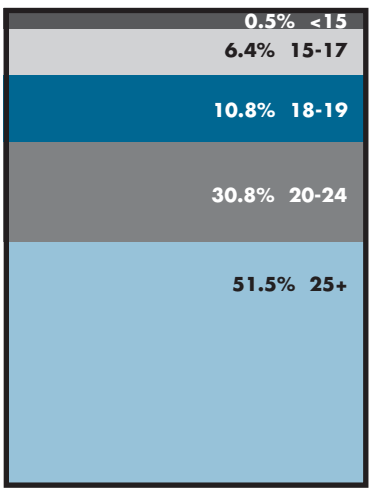
Of all MHBP infant deaths, 28.4% were to women under 20 years of age. In the City of Milwaukee, 17.7% of the livebirths were to women under 20 years of age and 25.6% of the infant deaths were to women under 20 years of age.

Wisconsin 2004 birth data showed that 8.7% of all births were to women under 20 years of age. U.S. 2003 birth data showed that 10.3% of all births were to women under 20 years of age.

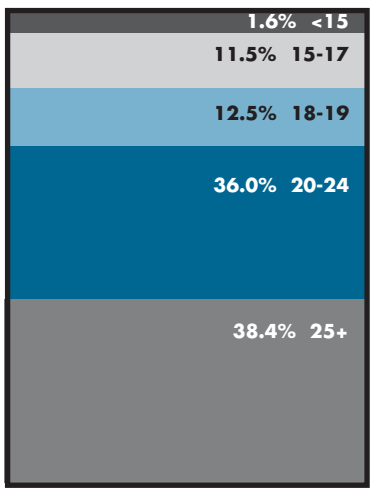
- Infants of mothers less than 20 years old in the MHBP target area were 3 times more likely to die than infants born to mother 20+ years old. This was the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to infant deaths).

- Teenage motherhood in the United States occurs almost exclusively among socioeconomically disadvantaged populations, in which women at any age may be exposed to environmental factors that elevate infant mortality.[14]

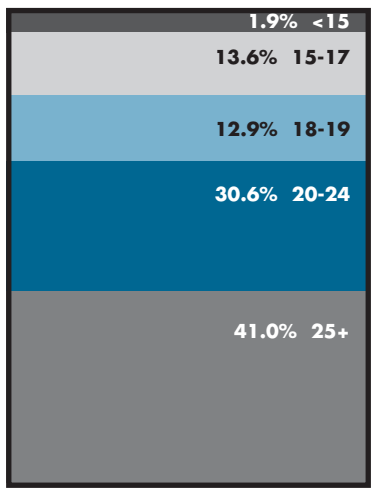
2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MATERNAL AGE N=32724



2002-2004 CITY OF MILWAUKEE INFANT DEATHS BY MATERNAL AGE N=389



2002-2004 MHBP TARGET AREA INFANT DEATHS BY MATERNAL AGE N=317



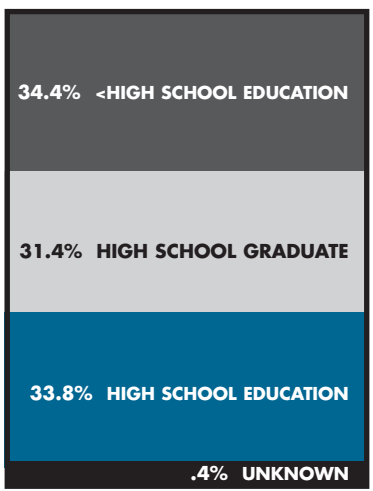
BY MATERNAL EDUCATION

In the MHBP target area, 48.3% of the infant deaths were to women with less than 12 years of education. In the City of Milwaukee, 34.4% of the live-births and 41.1 % of the infant deaths were to women with less than 12 years of education.

Wisconsin 2004 birth data showed that 15.5% of new mothers has less than a high school education. U.S. 2004 birth data showed that 21.6% of new mothers had less than a high school education.

- Twice as many Milwaukee mothers do not finish high school when compared to all Wisconsin mothers.
- Education acts as a proxy for economic status and for the geographic area of resilence.[15]

2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MATERNAL EDUCATION N=32597



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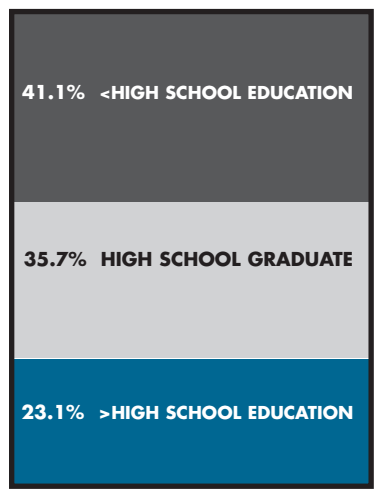
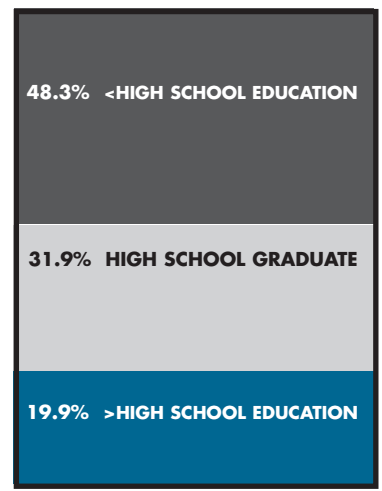


2002-2004 MHBP TARGET AREA INFANT DEATHS BY MATERNAL EDUCATION N=317



BY MARITAL STATUS

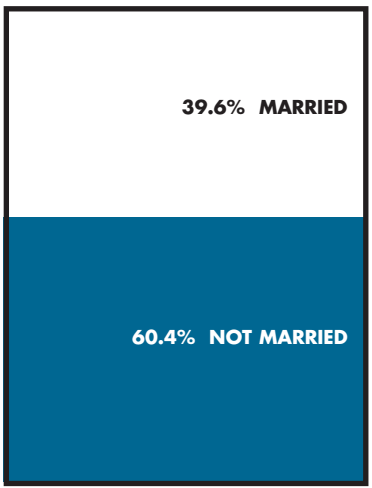
82.3% of the MHBP target area infant deaths and 78.2% of City of Milwaukee infant deaths were to unmarried women. In the City of Milwaukee, 60.4% of the livebirths to unmarried women.

Wisconsin 2004 birth data showed that 31.6% of mothers were unmarried. U.S. 2004 birth data showed that 34.6% of mothers were unmarried.

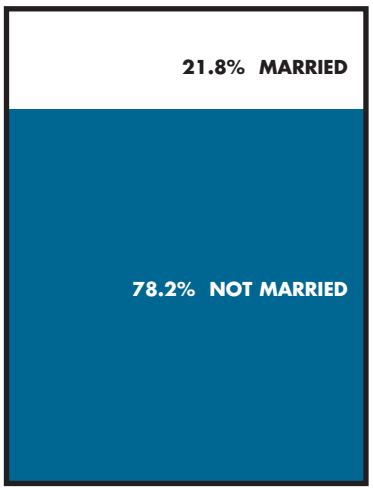
- Infants of non-married parents in the MHBP target area were nearly 2 times more likely to die than if their parents were married. This was the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to infant deaths).

- In 2001, U.S. mean income for female-headed households with dependent children was $36,300, compared with $82,000 for married couple households with dependent children, according to data from the March 2002 Current Population Survey (CPS). In addition, 27 percent of households headed by unmarried women were poor (with incomes below the federal poverty level), and more than one-third were poor or near poor (with incomes less than 125 percent of the poverty level).[16]

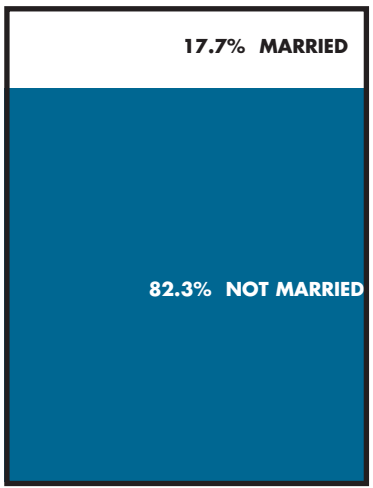
2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MARITAL STATUS N=32724



2002-2004 CITY OF MILWAUKEE INFANT DEATHS BY MARITAL STATUS N=389



2002-2004 MHBP TARGET AREA INFANT DEATHS BY MARITAL STATUS N=317



BY TRIMESTER OF CARE

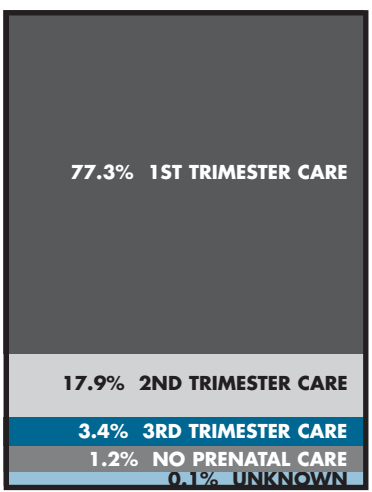
63.7% of MHBP target area mothers of infants who died began their care in the 1st trimester and 14.2% had no prenatal care. In the City of Milwaukee, 66.3% of FIMR mothers began their care in the 1st trimester and 12.6% had no prenatal care. Of all City of Milwaukee livebirths, 77.3% of the mothers began their care in the 1st trimester and only 1.2% with no prenatal care.

Wisconsin 2004 birth data showed that 85.1% of mothers began their care in the 1st trimester, 11.7% in the 2nd trimester, 2.2% in the 3rd trimester, and .7% had no prenatal care. U.S. 2003 birth data showed that 84.1% began their care in the 1st trimester, 12.2% in the 2nd trimester, and 2.4% in the 3rd trimester, and 3.5% of mothers had no prenatal care.

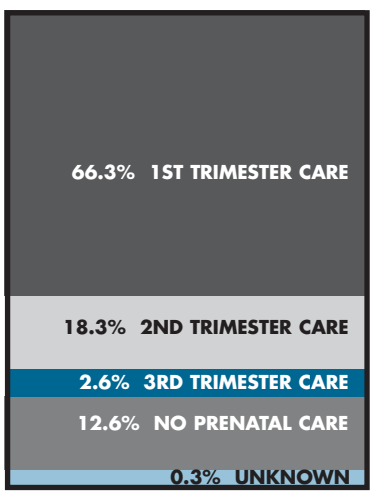
- Infants of mothers in the MHBP target area who had no prenatal care were nearly 11 times more likely to die than infants of mothers who began their prenatal care in the 1st trimester. In the City of Milwaukee, infants of mothers who had no prenatal care were nearly 12 times more likely to die than infants of mothers who began their prenatal care in the 1st trimester (rate determined by comparing livebirths to infant deaths).

- Over 20% of Wisconsin women without prenatal care in 2004 lived in Milwaukee.

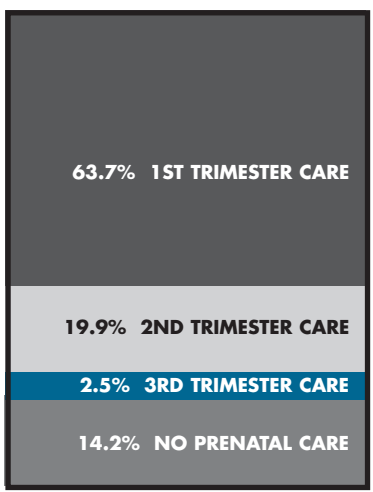
2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY TRIMESTER OF CARE N=32724



2002-2004 CITY OF MILWAUKEE INFANT DEATHS BY TRIMESTER OF CARE N=389



2002-2004 MHBP TARGET AREA INFANT DEATHS BY TRIMESTER OF CARE N=317



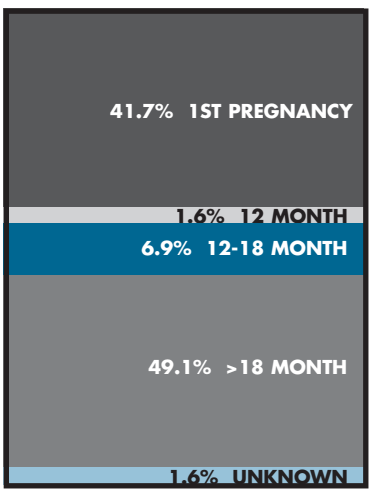
BY INTERVAL BETWEEN PREGNANCIES

Of all MHBP target area infant deaths, 12% of mothers had less than a 12 month interval between this pregnancy and the last pregnancy; 18.9% had a 12-18 month interval. 12.9% of City of Milwaukee FIMR mothers had less than a 12 month interval between this pregnancy and the last pregnancy; 24.8% had a 12-18 month interval. Of all City of Milwaukee livebirths, 1.6% of mothers had less than a 12 month interval between this pregnancy and the last pregnancy, 6.9% had a 12-18 month interval.

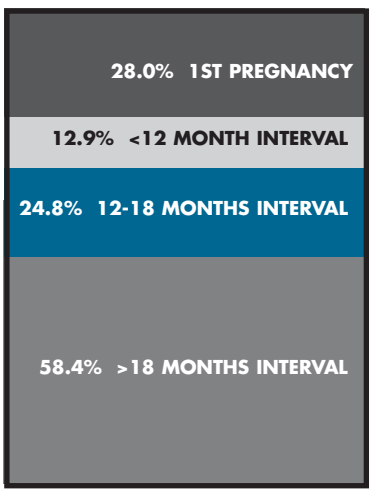
Wisconsin 2004 data shows that 9.4% of women had less than a 12 month interval between this pregnancy and the last pregnancy. There are no national comparative values.

- An interval of less than than 12 months between pregnancies in the MHBP target area increased the risk of infant mortality more than 6 times. In the City of Milwaukee, this risk was 7 times (rate determined by comparing livebirths to infant deaths).
- An interval of 12-18 months between pregnancies in the MHBP target area dropped this risk to nearly 2 times. This was the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to infant deaths).
- Short intervals between pregnancies are linked to both intentional and unintentional injuries, and SIDS.

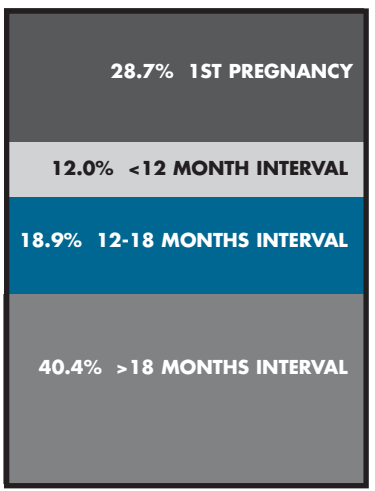
2002-2004 CITY OF MILWAUKEE LIVEBIRTHS BY INTERVAL BETWEEN PREGNANCIES N=32724



2002-2004 CITY OF MILWAUKEE INFANT DEATHS BY INTERVAL BETWEEN PREGNANCIES N=389



2002-2004 MHBP TARGET AREA INFANT DEATHS BY INTERVAL BETWEEN PREGNANCIES N=317



INFANT DEATHS

This section looks at data derived from 2002-2004 infant death medical and social service record abstractions for both the City of Milwaukee and the MHBP Target Area.

PREMATURITY

Most pregnancies last around 40 weeks. Babies born between 37 and 42 weeks of pregnancy are called full term. Babies born before 37 weeks of pregnancy are called premature or preterm. About 12 percent of babies in the United States are born preterm. Of those, the majority (84 percent) are born between 32 and 36 weeks of gestation. About 10 percent are born between 28 and 31 weeks of gestation, and about 6 percent are born at less than 28 weeks of gestation.[9]

All babies born preterm are at risk for serious health problems, but those born earliest are at greater risk of medical complications, long-term disabilities and death. Fortunately, advances in obstetrics and neonatology, the branch of pediatrics that deals with newborns, have improved the chances for survival for even these smallest babies.

Babies born preterm face a greater risk of serious health problems for several reasons. It Is likely that the birthweight will be less, their organs will be underdeveloped, and they will be more likely to face complications. These babies may require care in a neonatal intensive care unit (NICU), which has specialized medical staff and equipment that can deal with the multiple problems faced by premature infants. Very premature babies also have the highest risk of death and lasting disabilities, such as mental retardation, cerebral palsy, lung and gastrointestinal problems, and vision and hearing loss.

What are some of the charactertistics of City of Milwaukee infant deaths due to Prematurity?

Milwaukee had 202 infant deaths where the baby died due to complications of prematurity in 2002-2004. Some characteristics of these mothers and their infants were:

- 71.3% of the mothers were Black.
- 72.8% of the infants were born before 24 weeks gestation.
- 53% of the mothers had had a previous preterm birth.
- 26.7% of the mothers were smokers.
- 23.8% of the mothers were less than 20 years old.
- 35.6% of the mothers had their 1st pregnancy when they were < 17 years old.
- 17.3% of the mothers had a drug or alcohol problem.
- 16.3% were multiple births where one or more of the infants died.

What are some of the charactertistics of MHBP Target Area infant deaths due to Prematurity?

The MHBP target area Milwaukee had 167 infant deaths where the baby died due to complications of prematurity in 2002-2004.

Some characteristics of these mothers and their infants were:

- 78.4% of the mothers were Black.
- 71.3% of the infants were born before 24 weeks gestation.
- 54.5% of the mothers had had a previous preterm birth.
- 30.5% of the mothers were smokers.
- 26.9% of the mothers were less than 20 years old.
- 38.9% of the mothers had their 1st pregnancy when they were < 17 years old.
- 19.8% of the mothers had a drug or alcohol problem.
- 12% were multiple births where one or more of the infants died.

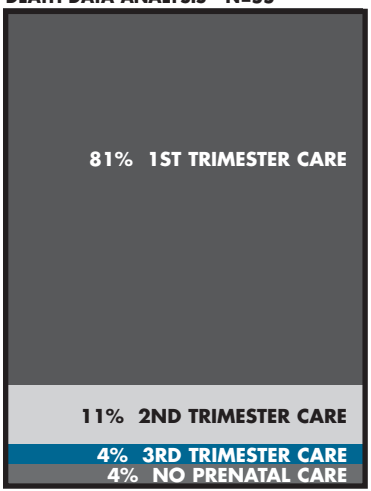
PRENATAL CARE INITIATION BY RACE/ETHNICITY...

Percentages for 1st trimester care were similar between Blacks and Hispanics in both the City of Milwaukee and the MHBP Target Area. However, these percentages were significantly less than for White women by nearly 20%.

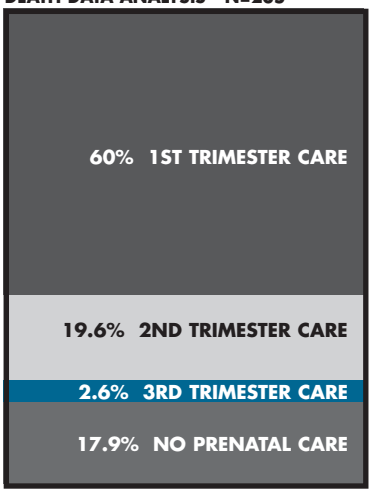
The percentage of both City of Milwaukee Black and Hispanic women, who had experienced an infant loss and had NO prenatal care, were 17.9% and 9%, respectively. In the MHBP Target Area, the percentage of Black and Hispanic women, who had experienced an infant loss and had NO prenatal care, were 16.8% and 9%, respectively.

The percentages of Black and Hispanic women who had no prenatal care have increased slightly since the previous report. In the previous report there were no significant racial/ethnic differences noted in 1st trimester initiation of care.

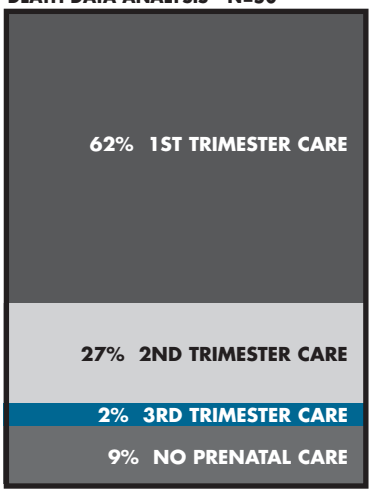
INITIATION OF CARE - WHITE WOMEN 2002-2004 CITY OF MILWAUKEE INFANT DEATH DATA ANALYSIS N=55



INITIATION OF CARE - BLACK WOMEN 2002-2004 CITY OF MILWAUKEE INFANT DEATH DATA ANALYSIS N=235



INITIATION OF CARE - HISPANIC WOMEN 2002-2004 CITY OF MILWAUKEE INFANT DEATH DATA ANALYSIS N=50



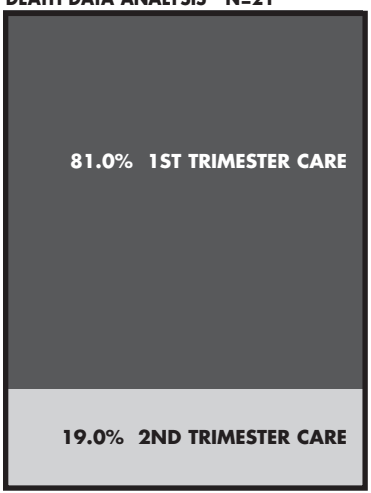
Of the 49 City of Milwaukee women who received no prenatal care

- 85.7% of them were Black.
- 67.3% had a pregnancy loss before 24 weeks gestation.
- 18% were without insurance.
- 30.6% had a pregnancy loss between 24-36 weeks gestation.

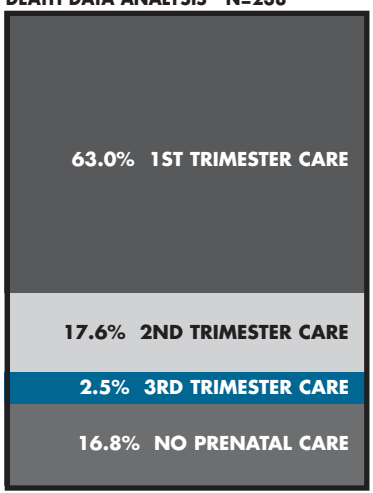
Of the 45 MHBP Target Area women who received no prenatal care

- 88.8% of them were Black.
- 20% were without insurance.
- 68.9% had a pregnancy loss before 24 weeks gestation.
- 28.9% had a pregnancy loss between 24-36 weeks gestation.

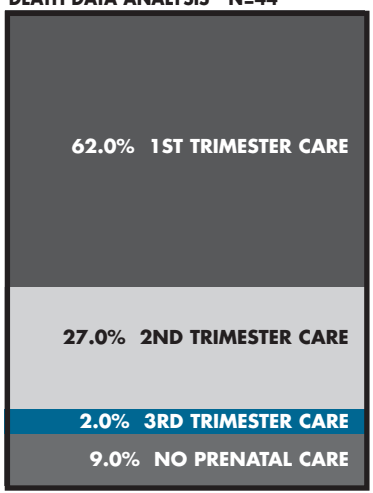
INITIATION OF CARE - WHITE WOMEN
2002-2004 MBHP TARGET AREA INFANT
DEATH DATA ANALYSIS N=21



INITIATION OF CARE - BLACK WOMEN
2002-2004 MHBP TARGET AREA INFANT
DEATH DATA ANALYSIS N=238



INITIATION OF CARE - HISPANIC WOMEN
2002-2004 MHBP TARGET AREA INFANT
DEATH DATA ANALYSIS N=44



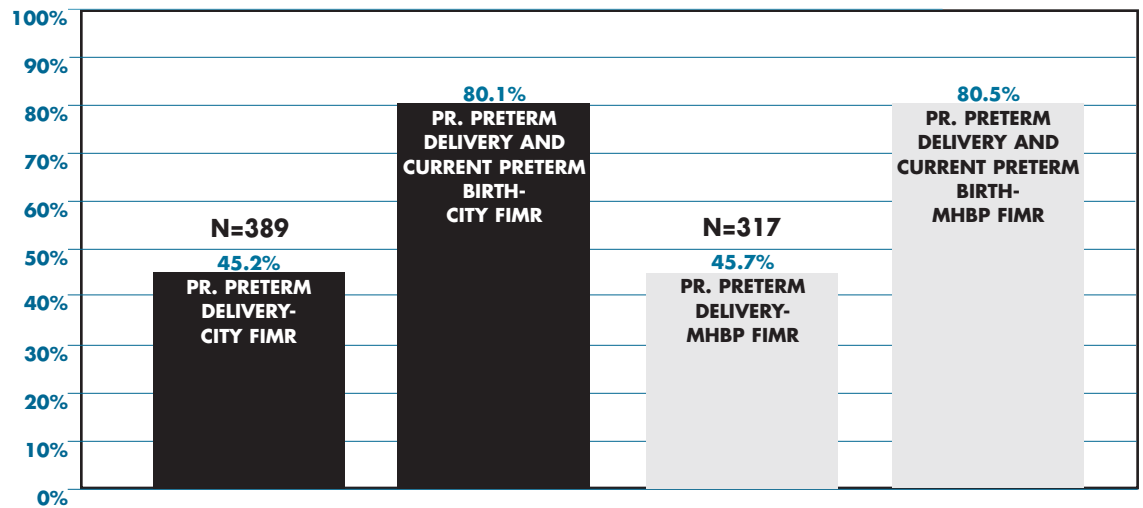
PREVIOUS PREGNANCY ISSUES IN FIMR CASES...

45.7% of MHBP Target Area FIMR mothers experienced a previous early infant loss, whether by miscarriage, stillbirth or an elective loss, representing an increase from the 37.3% seen in the previous report. This preterm birth was the 2nd such birth for 80.5% of these mothers.

45.2% of City of Milwaukee FIMR mothers experienced a previous early infant loss, representing an increase from the 36.9% seen in the previous report. This preterm birth was the 2nd such birth for 80.1% of these mothers.

"A previous poor pregnancy outcome should be considered a paramount reason to get early and well-managed prenatal care with any subsequent pregnancies. Ideally, such care should begin right after the loss or poor outcome and contact should be maintained through to the next delivery."
F. Broekhuizen, MD FIMR Case Review Team member

PREVIOUS PREGNANCY ISSUES 2002-2004 CITY OF MILWAUKEE/MHBP TARGET AREA
INFANT DEATH DATA ANALYSIS



PRENATAL INFECTION AND PRETERM BIRTH...

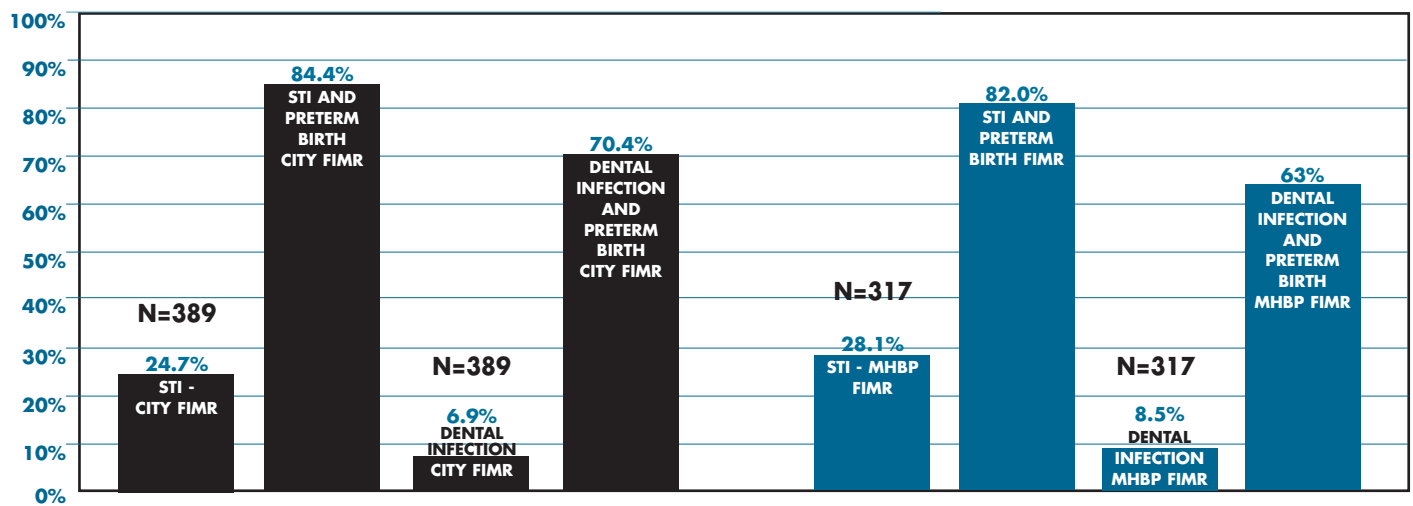
A diagnosed sexually transmitted infection was identified in 28.1% of MHBP FIMR mothers with 82% of these women experiencing preterm labor. This is a decrease from the 42.6% noted in the previous report. Dental infections were seen in 8.5% of MHBP FIMR mothers with 63% of these women experiencing preterm labor.

A diagnosed sexually transmitted infection was identified in 24.7% of City of Milwaukee FIMR mothers with 84.4% of these women experienced preterm labor. This represents a decrease from the 34.2% noted in the previous report. Dental infections were seen in 6.9% of City of Milwaukee FIMR mothers with 70.4% of these women experiencing preterm labor.

"There is compelling evidence that a link exists between preterm/low birth weight (PLBW) and periodontitis. Although 25% to 50% of PLBW deliveries occur without any known aetiology, there is increasing evidence that infection may play a significant role in pre-term delivery. A model explaining the plausible relationship is proposed based upon the concept of infection leading to a cascade of inflammatory reactions associated with pre-term labour and periodontal disease. Current evidence has pointed to an interest in dental intervention studies to control periodontal disease as one of the potential strategies to reduce pre-term labour."[17]

Sexually transmitted infections can lead to many maternal complications, such as premature rupture of the fetal membranes, infection of the membranes surrounding the fetus, premature labor and delivery, postdelivery infection of the uterus, and postpartum infant complications. STI's also increase the risk of a subsequent preterm birth.[18]

PRENATAL INFECTION AND PRETERM BIRTH 2002-2004 CITY OF MILWAUKEE/MHBP TARGET AREA INFANT DEATH DATA ANALYSIS



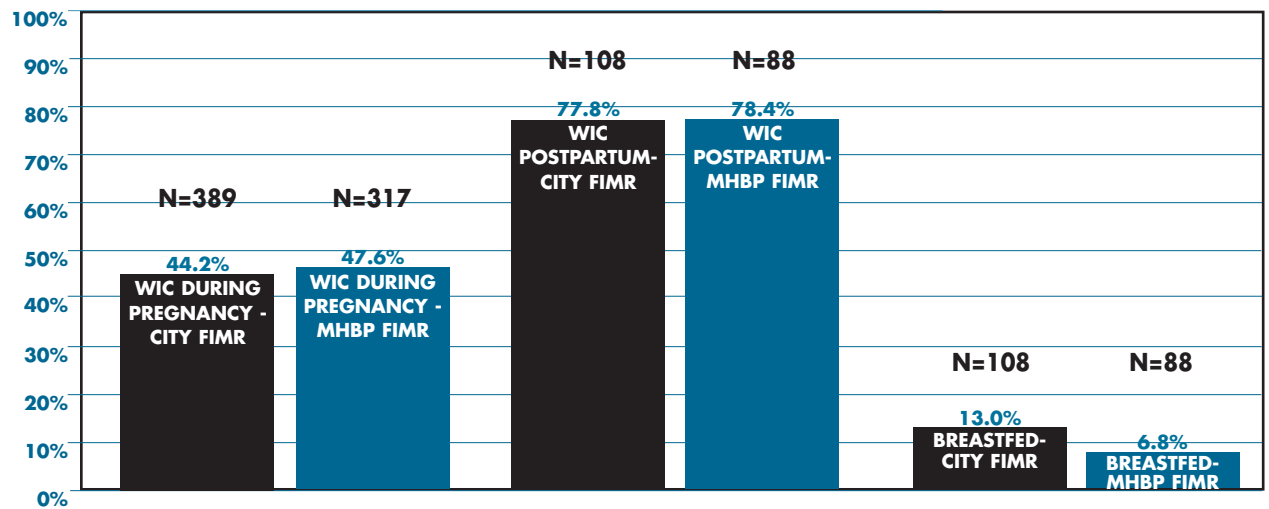
WIC UTILIZATION...

Only 47.6% of MHBP FIMR mothers were prenatally enrolled in the Women, Infants and Children (WIC) Supplemental Nutrition Programs, compared to 50.8% in the 2000-2001 report. Among MHBP FIMR infants discharged from the hospital, 78.4% were enrolled in the WIC program. This represents a decrease from 86.8% in the previous report. Income data is needed to determine WIC eligibility and this was not available. Over 75% of mothers giving birth in Milwaukee County in 2000 were eligible to receive WIC.[19] Only 6.8% of MHBP FIMR mothers breastfed their infants.

Only 44.2% of City of Milwaukee FIMR mothers were prenatally enrolled in the Women, Infants and Children (WIC) Supplemental Nutrition Programs, compared to 47% in the previous report. Among infants discharged from the hospital, 77.8% were enrolled in the WIC program. This represents a decrease from 88.6% in the previous report. Only 13% of City of Milwaukee FIMR mothers breastfed their infants.

The reasons given for not enrolling in the WIC program include access to transportation, WIC office hours conflicting with work hours, a fear of enrolling in government programs, an unwillingness to participate and lack of a referral from physicians, clinics or hospital staff. Many mothers who received WIC with their last pregnancy do not take advantage of the program with a subsequent pregnancy. WIC also is available to all post-partum women for six (6) months, even if their child died in the hospital.

WIC USE 2002-2004 CITY OF MILWAUKEE/MHBP TARGET AREA INFANT DEATH DATA ANALYSIS



SMOKING DURING PREGNANCY AND SECOND-HAND SMOKE EXPOSURE

In 2004, a decrease in smoking during pregnancy among MHBP FIMR mothers is noted from the previous year, a change from 36.2% to 33.8%. 55.7% of MHBP FIMR infants who were discharged were exposed to secondhand smoke, a decrease from 57.7% in the previous report.

30.6% of City of Milwaukee FIMR mothers smoked during their pregnancy. This represents a decline from 34.6% in the previous report. 55.6% of infants who were discharged were exposed to secondhand smoke, a decrease from 58.5% in the previous report.

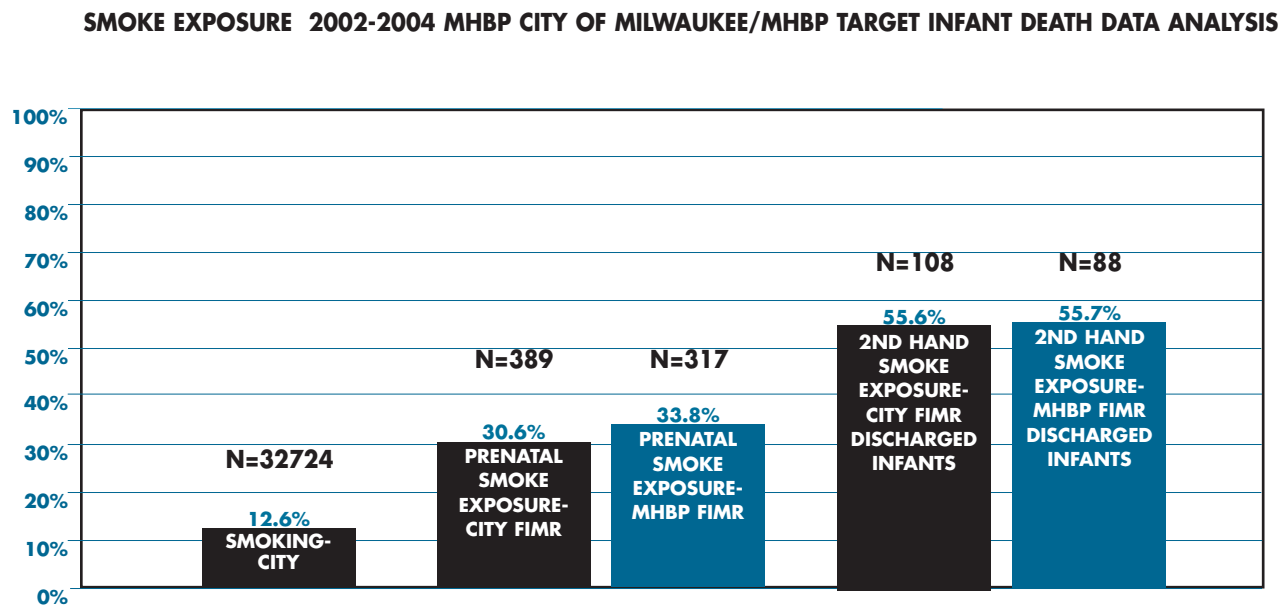
2002-2004 City of Milwaukee livebirth certificate data show that 12.6% of mothers smoked during their pregnancy.

- Maternal smoking is associated with low birthweight, stillbirth, miscarriage, preterm birth, and death from SIDS. "Nicotine, an ingredient in cigarettes, causes blood vessels to narrow, thereby decreasing the amount of oxygen the fetus can receive. Research shows a positive association between physical defects among newborns and maternal smoking during pregnancy. Preterm delivery, low-weight full-term babies and fetal and infant death all occur more frequently among mothers who smoke during pregnancy than among those who do not."[20]

- Second-hand smoke increases the risk of life-threatening infections, asthma, middle ear infections, cancer, food allergies, and also is associated with a higher risk of SIDS death.

- Smoking cessation is one of the largest modifiable risk factors to reduce fetal and infant death.

SMOKING DURING PREGNANCY AND SECOND-HAND SMOKE EXPOSURE



KNOWN SUBSTANCE USE...

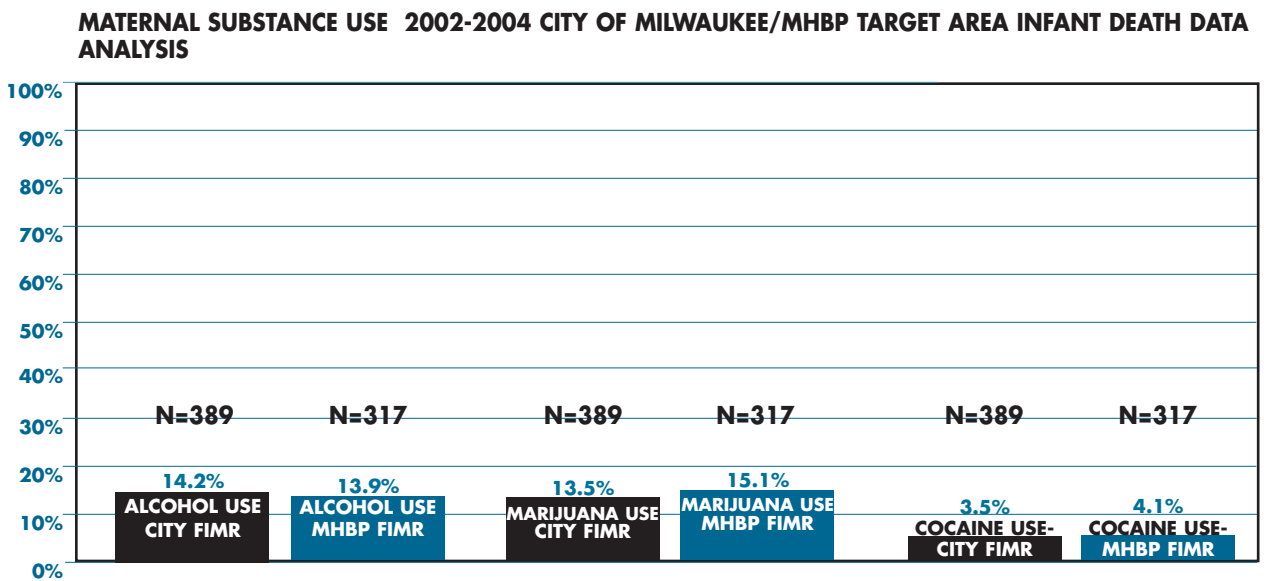
Alcohol and drug use impairs a parent's ability to respond to a child's physical, emotional or safety needs.

13.9% of MHBP FIMR mothers drank alcohol during their pregnancy. This was 15.8% in the previous report. 14.2% of City of Milwaukee FIMR mothers drank alcohol during their pregnancy compared to a 1.1% city-wide percentage on 2002-2004 birth certificates. This was 16.2% in the previous report. Alcohol use increases the risk of miscarriage, preterm birth and low birthweight. Binge drinking has been shown to increase the risk of SIDS eight (8) times.[21]

15.1% of MHBP FIMR mothers used marijuana during their pregnancy, reducing use by over half from the previous year of 33.3% in the previous report. 13.5% of City of Milwaukee FIMR mothers used marijuana during their pregnancy, also a decrease from 33% in the previous report. It is well documented that marijuana consumption by pregnant women when combined with malnourishment and inadequate prenatal care may increase the chances of negative fetal consequences. Marijuana use has been linked to miscarriage, stillbirth and low birth weight. It has been reported that some infants have experienced problems with sleep and mental development. Marijuana use during pregnancy impairs fetal development and has a subtle but permanent effect on infant memory, language compression and attention.[22]

4.1% of MHBP FIMR mothers reported use of cocaine during their pregnancy in 2004 as opposed to 18% in the previous report. 3.5% of City of Milwaukee FIMR mothers used cocaine during their pregnancy, a drop from 14.6% in the previous report. "Cocaine use often results in a pattern of risk not only related to polydrug use, but to increased risk of sexually transmitted infections, of undernutrition, of violence, and of lack of prenatal care. Epidemiologic evidence is strongest for the associate of cocaine use and abruption of the placenta. Various studies have placed the risk for abruption in cocaine users at around 10-19%. Abruption can result in intrauterine death."[23]

KNOWN SUBSTANCE USE...

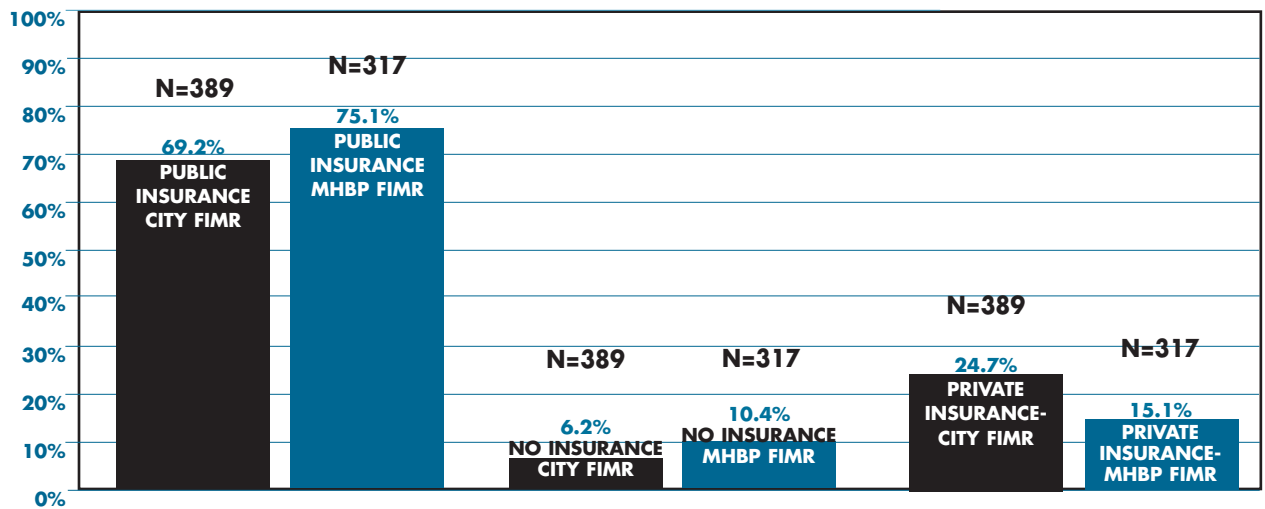


INSURANCE COVERAGE

Over 75% of all MHBP FIMR mothers were covered by public insurance. 10.4% of the MHBP FIMR mothers had NO insurance. 69.2% of City of Milwaukee FIMR mothers had public insurance and 6.2% of these mothers had no insurance during their pregnancy.

- The Bureau of Health Information and Policy, State of Wisconsin 2004 Wisconsin Health Insurance Coverage report found that 81% of adults in the State had private or employer sponsored insurance. 11% of adults were covered by public insurance and 8% had essentially no insurance.[24]

INSURANCE COVERAGE 2002-2004 CITY OF MILWAUKEE/MHBP TARGET AREA INFANT DEATH DATA ANALYSIS



SLEEP ENVIRONMENT...

Sleep environment is a complex and often controversial issue in the deaths of many children who have been brought home and then died. A Safe Sleep environment for a baby is a crib, a mattress, a tightly fitted sheet and a baby on his or her back. That is all.

44.3% of MHBP FIMR infants and 46.3% of City of Milwaukee FIMR infants were sharing a bed or other sleep surface with a parent(s) or caregiver when they died. The previous report noted 51.4% bed-sharing for MHBP FIMR infants and 51.3% for City of Milwaukee FIMR infants.

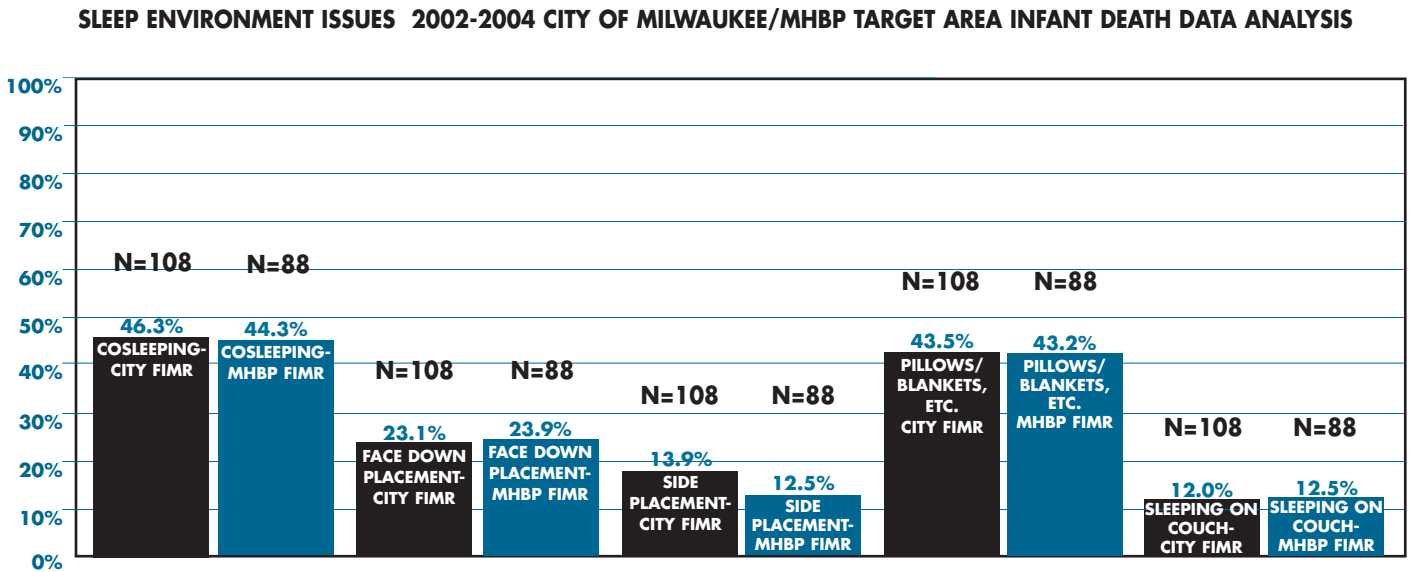
23.9% of MHBP FIMR infants and 23.1% of City of Milwaukee FIMR infants were still placed on their stomachs (prone) to sleep. The previous report noted 19.2% for MHBP FIMR infants and 19.5% for City of Milwaukee FIMR infants.

12.5% of MHBP FIMR infants and 13.9% of City of Milwaukee FIMR infants who died were placed on their sides to sleep. This has decreased from the 30.1% for MHBP FIMR infants and 31.2% for City of Milwaukee FIMR infants reported previously. Stomach sleeping (prone) or side sleeping increases the risk of infant death from SIDS and Sudden Unexpected Death in Infancy (SUDI).

In 43.2% of these MHBP FIMR cases and 43.5% of the City of Milwaukee FIMR cases, unsafe bedding, such as quilts, pillows, or blankets, was implicated in the child's death. The previous report noted 37.1% for MHBP FIMR infants and 41.7% for City of Milwaukee FIMR infants. Soft surfaces and objects (blankets, pillows, soft mattresses, stuffed animals) can trap air near the face of an infant and increase risk of SIDS or SUDI.

12.5% of MHBP FIMR infants and 12% of City of Milwaukee FIMR infants who died were sleeping on a couch or chair with a caregiver when they died. Although this was not reported in the previous report, this has decreased from 24.2% for MHBP FIMR infants and 18.3% for City of Milwaukee FIMR infants.

SLEEP ENVIRONMENT...



BED-SHARING AND SUBSTANCE USE...

Parent or caregiver substance use was combined with bed-sharing in some infant deaths. Alcohol, marijuana and cocaine are known to reduce attentiveness and should never be used when sharing a bed with an infant. While the risk of bed-sharing is considered controversial, both the American Academy of Pediatrics[25] and the Consumer Product Safety Commission[26] have stated that bed-sharing should never be done when under the influence of alcohol or drugs, including prescription drugs.

Again, bedsharing was seen in 46.3% of infants who had gone home from the hospital. Bed-sharing combined with alcohol use by mothers or other caregivers was seen in 22% of MHBP infant deaths and 34% of City of Milwaukee infant deaths.

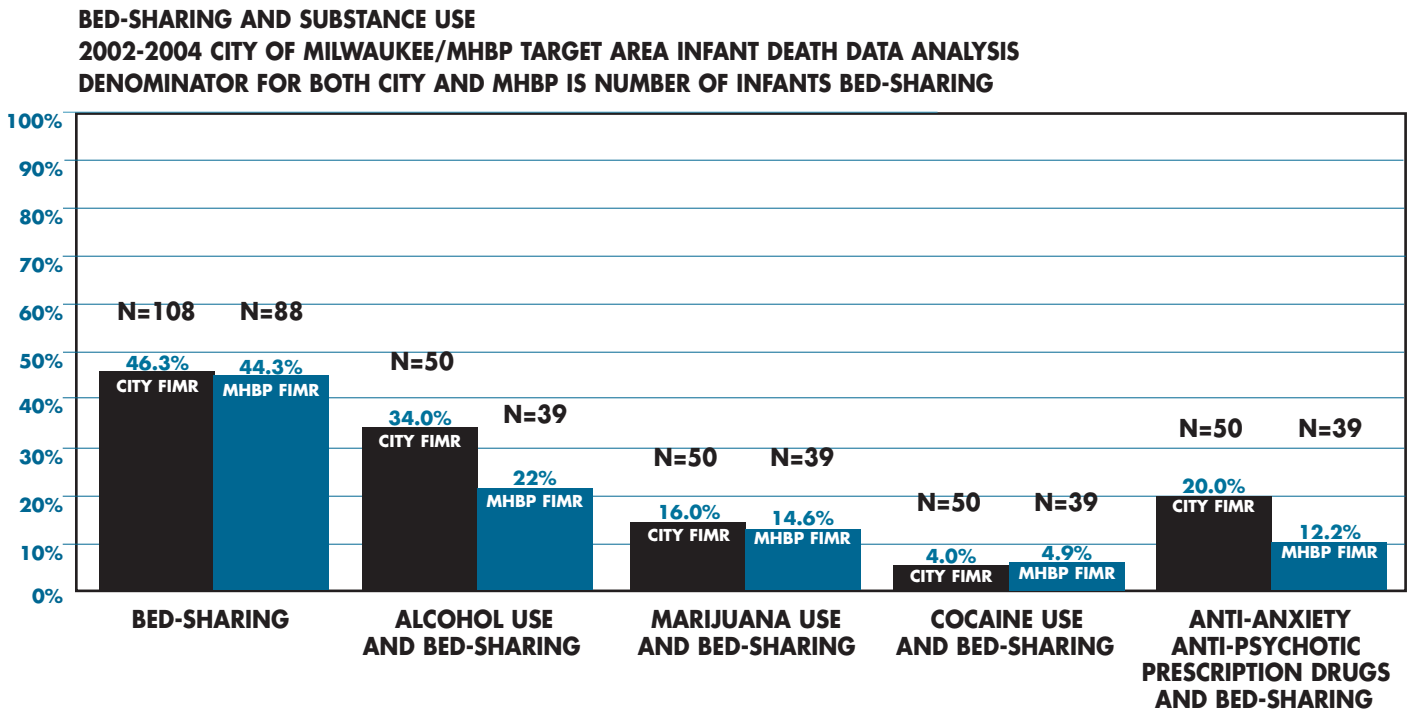
Bed-sharing combined with marijuana use by mothers or other caregivers was seen in 14.6% of MHBP infant deaths and 16% of City of Milwaukee infant deaths.

Bed-sharing combined with cocaine use by mothers or other caregivers was seen in 4.9% of MHBP infant deaths and 4% of City of Milwaukee infant deaths.

Bed-sharing combined with the use anti-anxiety or anti-psychotic prescription drugs by mothers or other caregivers was seen in 20% of both MHBP infant deaths and City of Milwaukee infant deaths.

Some mothers used multiple substances.

BED-SHARING AND SUBSTANCE USE...

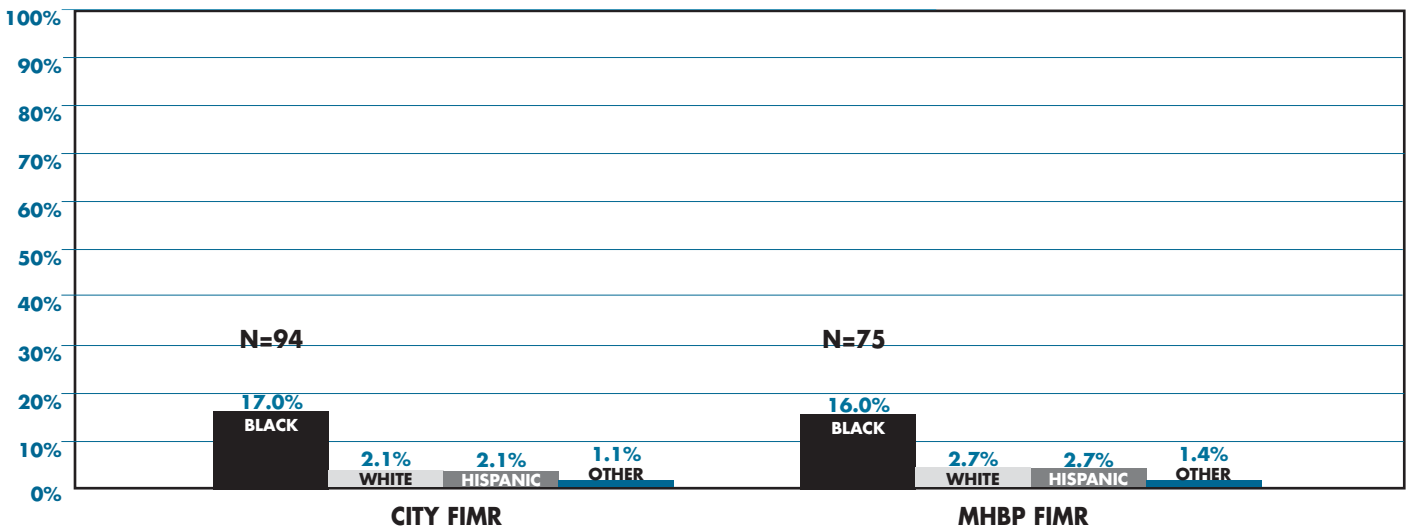


PEDIATRIC CARE BY RACE/ETHNICITY...

Many infant care protocols recommend that well-baby pediatric appointments start by at least two (2) weeks of age. Of the 94 City of Milwaukee children who died after discharge and who were at least 4 weeks of age, White, Hispanic and Other Race infants received well-baby care eight times more often than Black infants. Black infants also missed scheduled pediatric appointments eight times more than any other race or ethnicity. Of the 75 MHBP Target Area babies who died after discharge and who were at least 4 weeks of age, White and Hispanic infants received well-baby care six times more often than Black infants. Black infants missed scheduled pediatric appointments six times more often than White or Hispanic infants. These numbers do not reflect any emergency room or urgent care use.

Although the percent of children not receiving pediatric care has slightly decreased from the previous report the race/ethnicity of the children who did not receive care has not changed. City of Milwaukee FIMR infants received pediatric care approximately 35% more often than MHBP FIMR infants.

PEDIATRIC CARE BY RACE/ETHNICITY - NO WELL-BABY CARE
2002-2004 CITY OF MILWAUKEE/MHBP TARGET AREA INFANT DEATH DATA ANALYSIS
INFANTS WHO DIED AFTER DISCHARGE >4 WEEKS OF AGE



EMOTIONAL WELLNESS AND SUPPORT DATA

These common themes were seen in FIMR cases.

5.4% of MHBP FIMR and 4.4% of City of Milwaukee FIMR mothers were homeless. This was not previously reported.

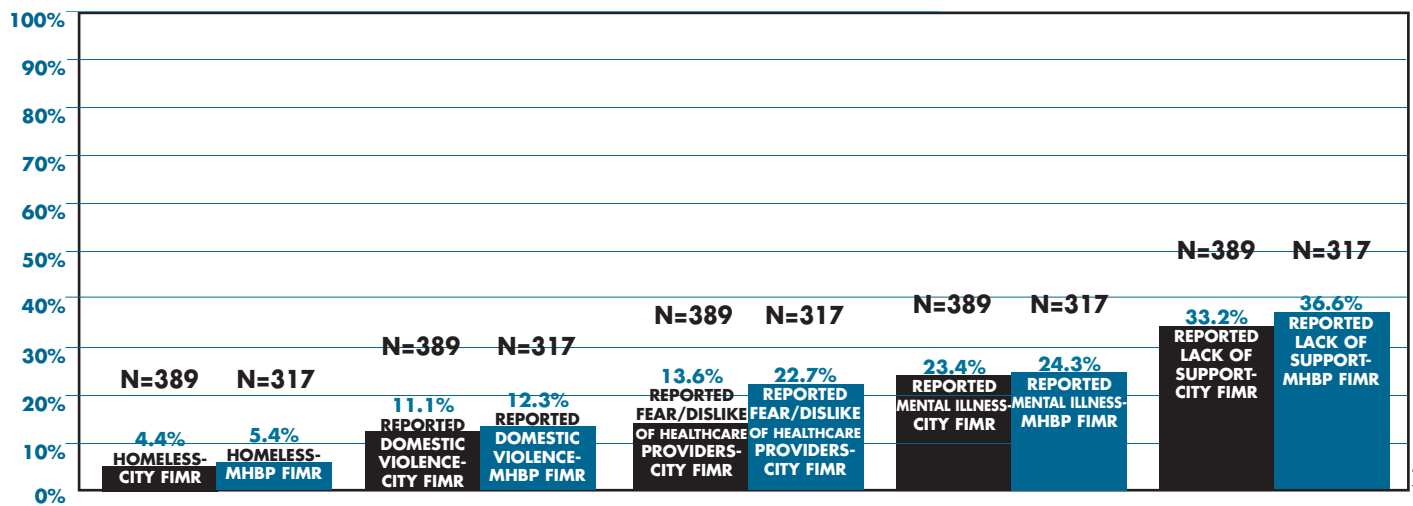
12.3% of MHBP FIMR mothers and 11.1% of City of Milwaukee FIMR mothers reported that they had been physically or emotionally abused. This was an increase from 5.6% for MHBP FIMR mothers and 5.1% City of Milwaukee FIMR previously reported.

22.7% of MHBP FIMR mothers and 13.6% of City of Milwaukee FIMR mothers reported that they were angry or fearful about the care they received from healthcare providers. This is by self-report. The previous report noted 21.1% for MHBP FIMR mothers and 21.4% for City of Milwaukee FIMR mothers.

24.3% of MHBP FIMR mothers and 23.4% of City of Milwaukee FIMR mothers had either a self-reported or documented mental health problem during their pregnancy. This was an increase from the 17.8% for MHBP FIMR mothers and 17.6% for City of Milwaukee FIMR mothers previously reported.

36.6% of MHBP FIMR mothers and 33.2% of City of Milwaukee FIMR mothers reported that they had an inadequate or non-existent support system during their pregnancy and/or when the baby was in the home. This was a decrease from the 50.6% reported by MHBP FIMR mothers and 48% reported by City of Milwaukee FIMR mothers.

EMOTIONAL WELLNESS AND SUPPORT ISSUES 2002-2004 MHBP CITY OF MILWAUKEE/MHBP TARGET AREA INFANT DEATH DATA ANALYSIS



FETAL DEATHS (STILLBIRTHS)

There were 352 reported stillbirths in Wisconsin in 2004. Until now, there has been no analysis of the medical or social service factors implicated in these deaths. This report gives details about the 118 MHBP target area stillbirths and 140 City of Milwaukee stillbirths occurring in 2003 and 2004.

What are the facts about fetal deaths (stillbirths)?

The International Stillbirth Association (ISA)[27] gives us these details.

- **In the United States**, one in 100-200 pregnancies ends in stillbirth. Many of these deaths are preventable.
- **Stillbirths are deaths of unborn babies**. There is still no international or national standard to define when a baby is considered stillborn.
- **Babies die in the womb for many reasons**. Stillbirth is not a cause of death. It is a description of when a baby dies.
- **Many institutions** report up to two-thirds of stillbirths as unexplained, but this often occurs when no efforts are made to find a cause of death. There is no standard method of performing these autopsies and no database to record autopsy results for researchers to draw from. Finding a cause, however, is crucial in counseling families who have had a stillborn baby.
- **Risk factors** for stillbirth vary with different causes of death.

CAUSE OF STILLBIRTH

These graphs show the Cause of Stillbirth for the City of Milwaukee overall and for the MHBP Target Area. Causation is based on the Stockholm Classification of Fetal Deaths.[27]

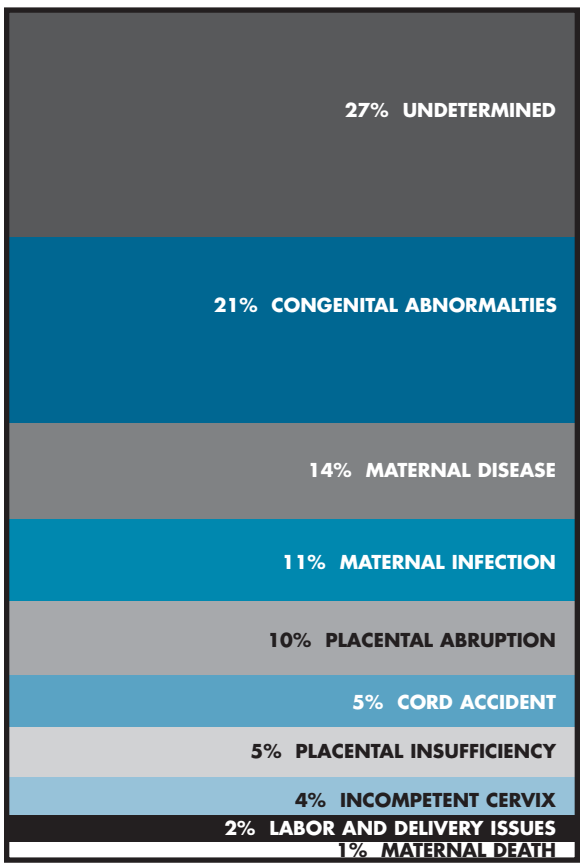
In the City of Milwaukee, the leading cause of stillbirth (27%) in 2003-2004 was **Undetermined** even after medical record abstraction and Case Review Team analysis. These deaths ranged from 20 weeks gestation to 41 weeks gestation. The second leading cause of stillbirth, representing 21% of 2003-2004 fetal deaths, was **Congenital Abnormalities**. Congenital abnormalities include such conditions such as heart defects, brain anomalies or genetic syndromes. The third leading cause of stillbirth, representing 14% of 2003-2004 fetal deaths, was **Maternal Disease**. This includes maternal diabetes, lupus, and hypertension.

In the MHBP Target Area, the leading cause of stillbirth (30%) in 2003-2004 was **Undetermined** even after medical record abstraction and Case Review Team analysis. These deaths ranged from 20 weeks gestation to 41 weeks gestation. The second leading cause of MHBP target area stillbirth, representing 21% of 2003-2004 fetal deaths, was **Congenital Abnormalities**. Congenital abnormalities include such conditions such as heart defects, brain anomalies or genetic syndromes. The third leading cause of MHBP Target Area stillbirth, representing 14% of 2003-2004 fetal deaths, was **Maternal Disease**. This again includes maternal diabetes, lupus, and hypertension.

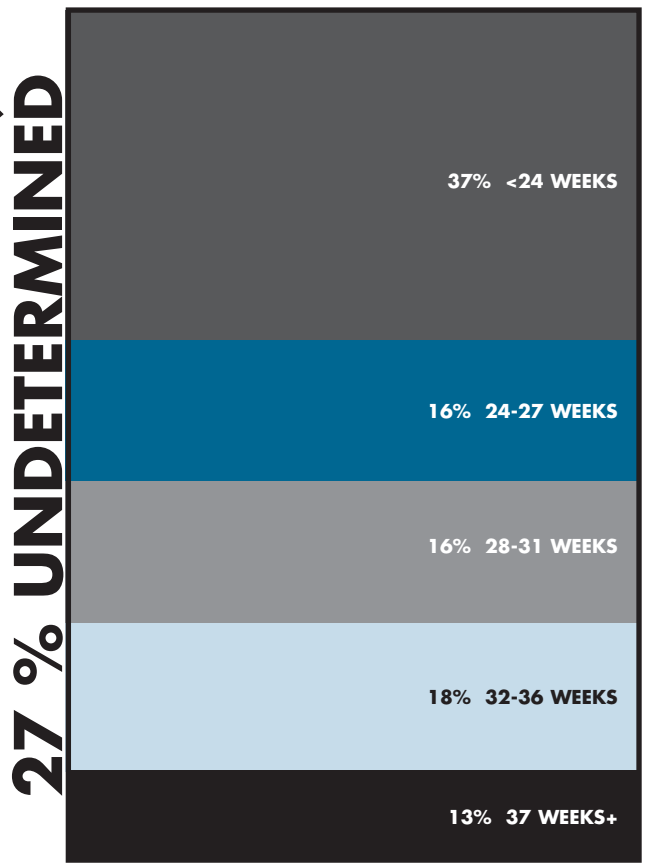
Causation is not the same as preventability. A confidential inquiry into Stillbirths and Infant Death in Northern Ireland found that the "failure to adequately diagnose and manage fetal growth restriction was the most common error, followed by the failure to recognize additional maternal medical risk factors in women who have had a previous pregnancy, previous obstetric omplication, delivery of a growth restricted fetus or stillborn fetus, as these events significantly increase their risk for adverse events in future pregnancies. Even low risk pregnancies with decreased fetal movement are known to have a higher risk of fetal distress in labor, for being growth restricted and for having an increased frequency of stillbirth. Patients who report decreased fetal movement should be considered high-risk pregnancies and have increased surveillance."[28]

CITY OF MILWAUKEE

CAUSE OF STILLBIRTH
2003-2004 CITY OF MILWAUKEE STILLBIRTH DATA
ANALYSIS N=140

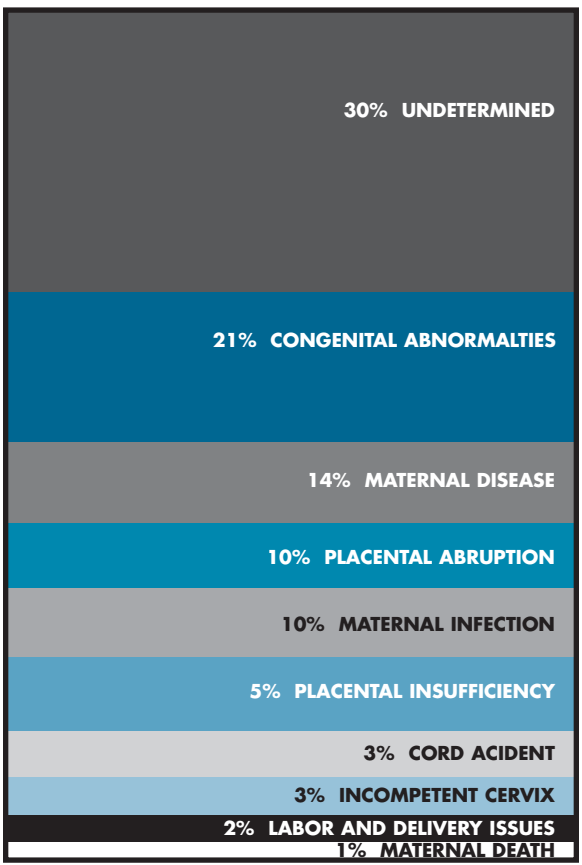


DISTRIBUTION OF THE 27% UNDETERMINED
CAUSE OF STILLBIRTH BY GESTATIONAL AGE
N=38

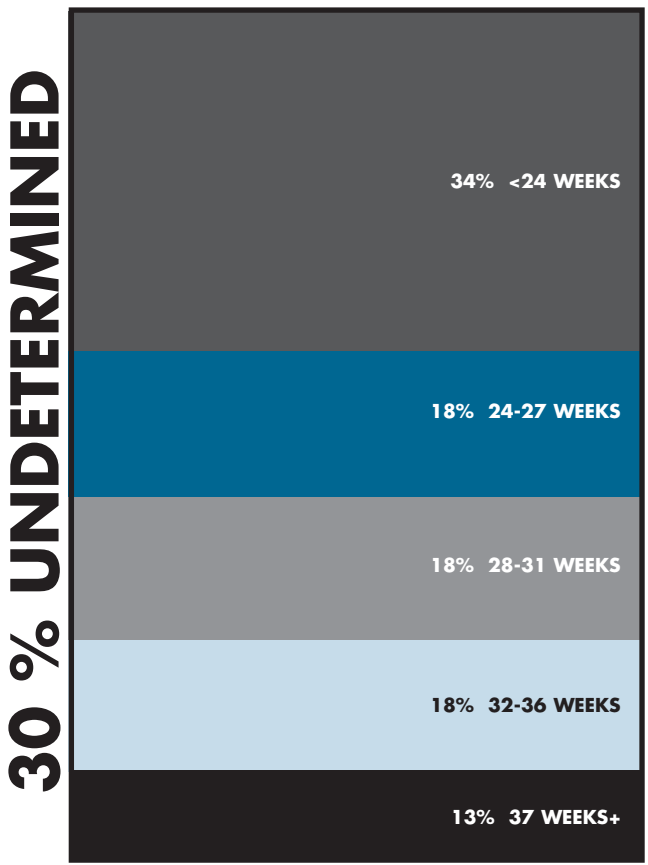


MHBP TARGET AREA

CAUSE OF STILLBIRTH
2003-2004 MHBP TARGET AREA STILLBIRTH DATA
ANALYSIS N=118



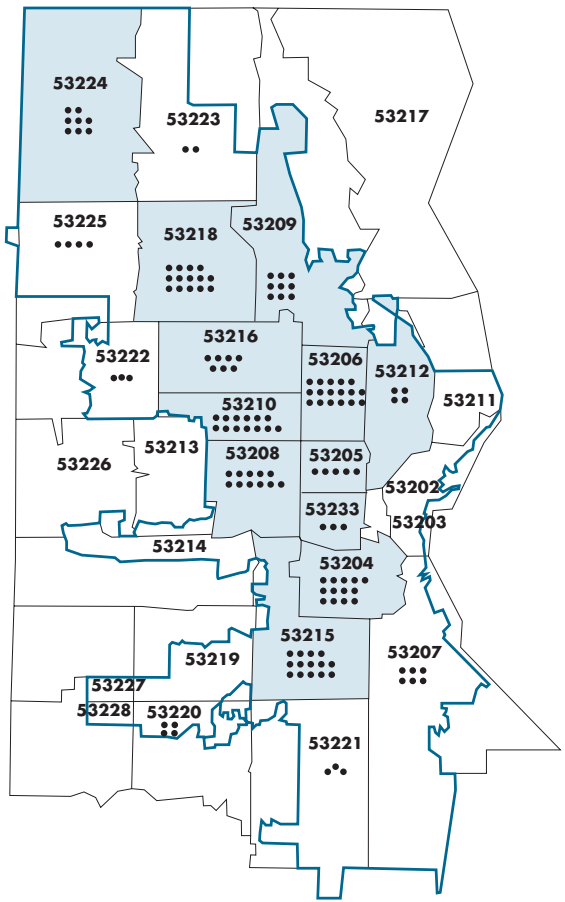
DISTRIBUTION OF THE 30% UNDETERMINED
CAUSE OF STILLBIRTH BY GESTATIONAL AGE
ANALYSIS N=34

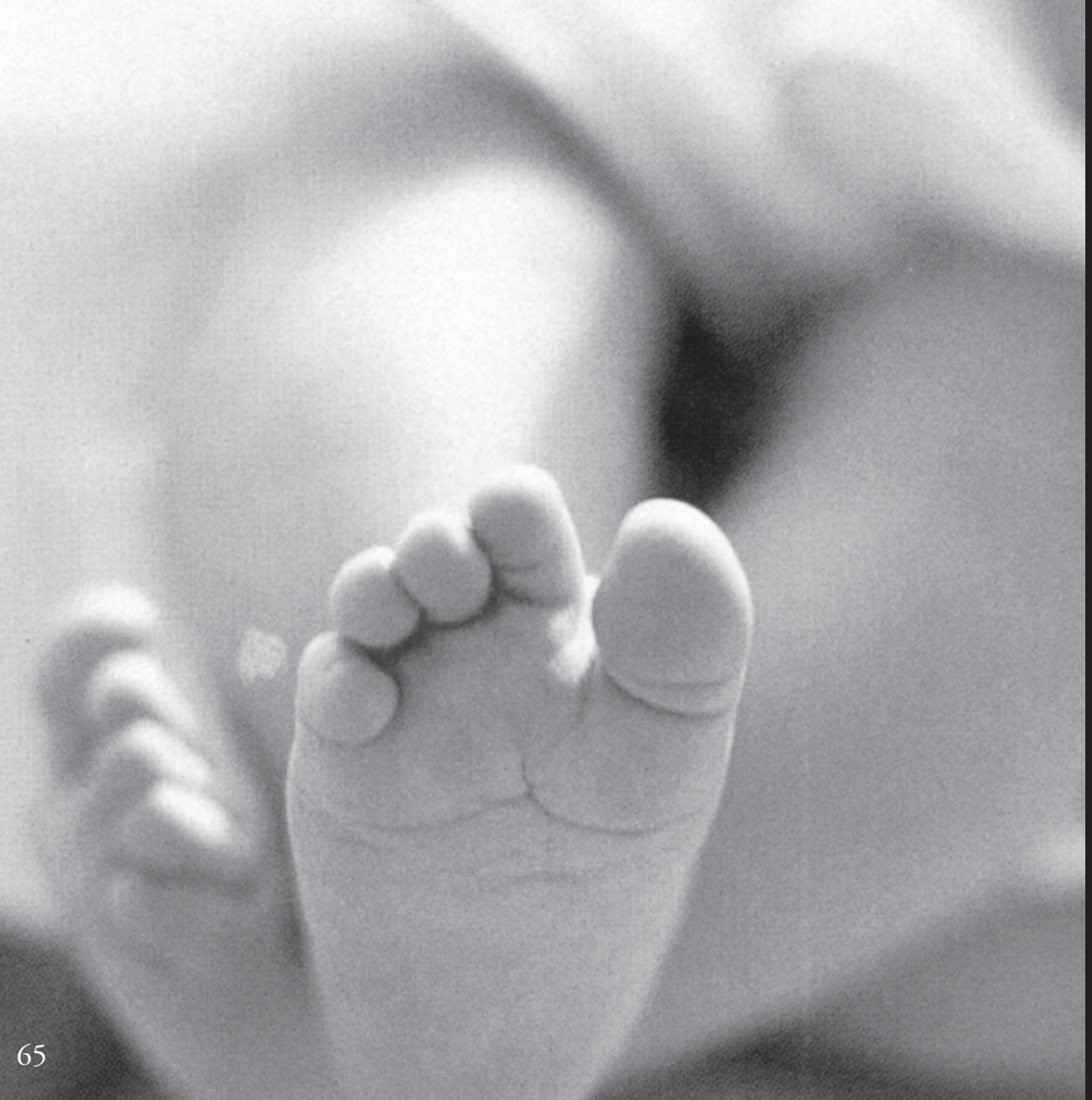


MAP OF MILWAUKEE STILLBIRTH...

This map details stillbirths in Milwaukee zip codes for the years 2003-2004. The shaded zip codes show the Milwaukee Healthy Beginnings Target Area. This dot density map shows the number of stillbirths per zip code. 53206 has the highest rate of fetal deaths, followed closely by 53224, 53220, 53210, 53205 and 53233. The table shows number of fetal deaths and fetal mortality rates per zip code for 2003-2004.

ZIP CODE	2002-2004 LIVEBIRTHS	# OF FETAL DEATHS	FETAL RATE
53202	249	0	0
53203	14	0	0
53204	2160	13	6
53205	496	5	10.1
53206	1366	17	12.4
53207	1012	6	5.9
53208	1479	11	7.4
53209	1386	9	6.5
53210	1203	13	10.8
53211	288	0	0
53212	1103	4	3.6
53213	211	0	0
53214	329	0	0
53215	2466	14	5.7
53216	1155	7	6.6
53217	64	0	0
53218	1520	14	9.2
53219	502	0	0
53220	359	4	11.1
53221	816	3	3.7
53222	694	3	4.3
53223	555	2	3.6
53224	711	8	11.3
53225	906	4	4.4
53226	96	0	0
53227	146	0	0
53228	108	0	0
53233	312	3	9.6





FETAL DEATHS (STILLBIRTHS)

This is the first report of fetal death (stillbirth) from the Milwaukee FIMR Project. The project was given access to Milwaukee resident stillbirth data starting in 2003. This section compares 2003-2004 MHBP target area stillbirth data to 2003-2004 City of Milwaukee stillbirth data to 2003-2004 City of Milwaukee livebirth data.

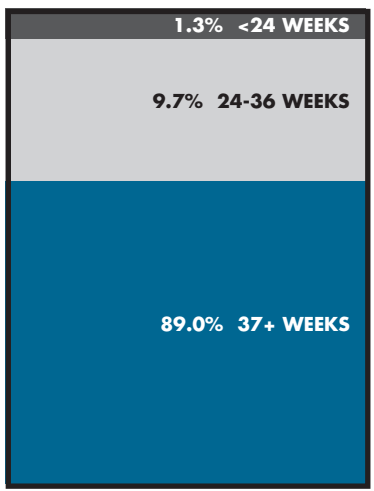
Again, each set of graphs compares the proportion of total births and deaths to a health or social status indicator. These risk factors are known to have an impact on fetal mortality.

BY GESTATIONAL AGE

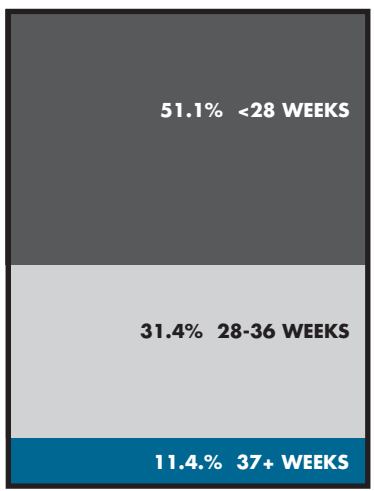
Of all 2003-2004 City of Milwaukee livebirths, 11% had a gestational age under 37 weeks. 88.9% of MHBP Target Area stillbirths had gestations less than 37 weeks and 88.5% of the City of Milwaukee stillbirths had gestations less than 37 weeks. .

- A gestational age of less than 37 weeks in the MHBP Target Area increased the risk of stillbirth 60 times (rate determined by comparing livebirths to stillbirths).
- In the City of Milwaukee, a gestational age of less than 37 weeks increased the risk of stillbirth 62 times (rate determined by comparing livebirths to stillbirths).
- The literature shows that gestational age and birthweight (next graph) are the greatest predictors of an infant's survival.

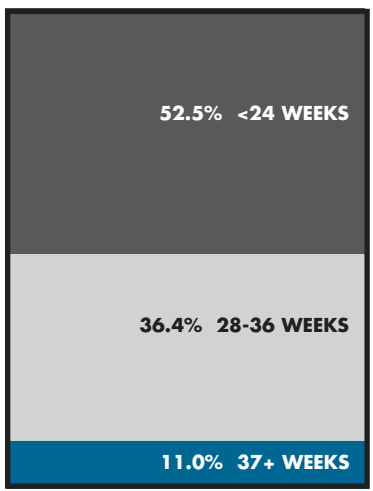
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY GESTATIONAL AGE N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTHS BY GESTATIONAL AGE N=140



2003-2004 MHBP TARGET AREA STILLBIRTHS BY GESTATIONAL AGE N=118

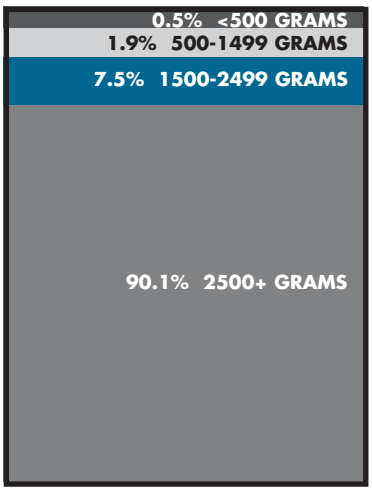


BY BIRTH WEIGHT

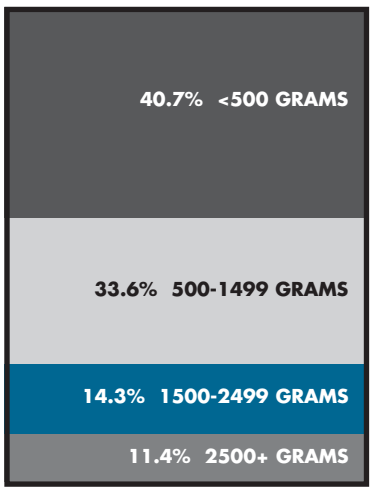
Of all 2003-2004 City of Milwaukee livebirths, 9.9% weighed less than 2500 grams (5 1/2 pounds). 90.7% of MHBP Target Area stillbirths and 88.6% of the City of Milwaukee stillbirths were under 2500 grams.

- A birthweight of less than 5 1/2 pounds in the MHBP Target Area increased the risk of stillbirth 65 times. In the City of Milwaukee, a birthweight of less than 5 1/2 pounds increased the risk of stillbirth nearly 70 times (rate determined by comparing livebirths to stillbirths).

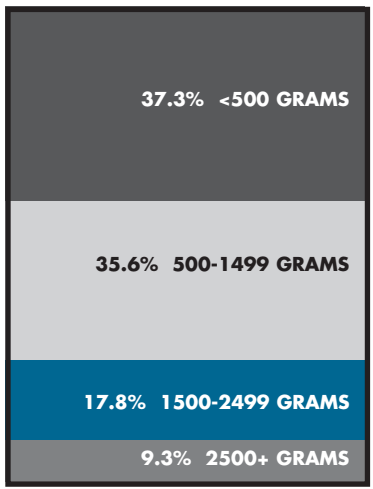
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY BIRTHWEIGHT N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTHS BY BIRTHWEIGHT N=140



2003-2004 MHBP TARGET AREA STILLBIRTHS BY BIRTH-WEIGHT N=118

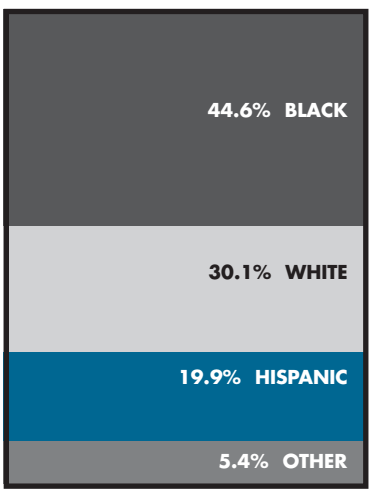


BY RACE/ETHNICITY

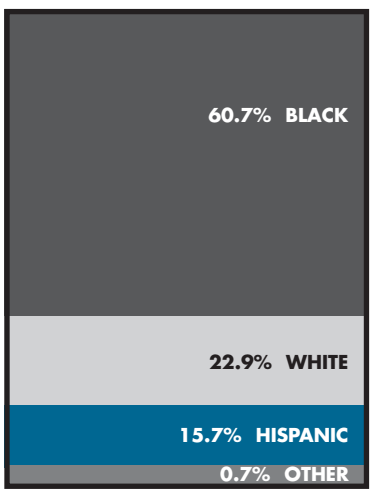
In 2003-2004 City of Milwaukee, 44.6% of the livebirths and 60.7% of the stillbirths were to Black women. 30.1% of the livebirths and 22.9% of the stillbirths were to White women. Hispanic women had 19.9% of the livebirths and 16.1% of the stillbirths. In the MHBP Target Area, 66.9% of the MHBP Target Area stillbirths were to Black women, 16.1% of the stillbirths were to White women and Hispanic women also had 16.1% of the stillbirths.

- Black mothers living in the MHBP Target Area were over 1 1/2 times more likely to have a stillbirth than Hispanic mothers. White mothers living in the MHBP Target Area had the same risk Black mothers (rates deternined by comparing livebirths to stillbirths).
- In the City of Milwaukee, Black mothers mothers were over 1 1/2 times more likely to have a stillbirth than White mothers and Hispanic mothers (rates determined by comparing livebirths to stillbirths).

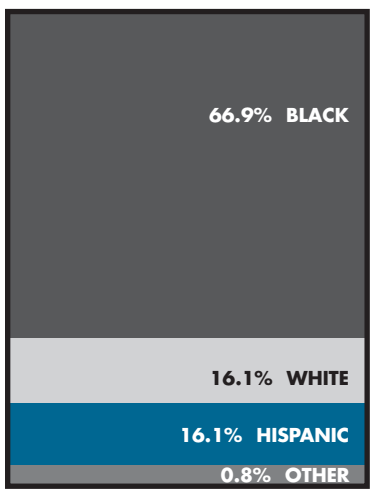
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY RACE/ETHNICITY N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTHS BY RACE/ETHNICITY N=140



2003-2004 MHBP TARGET AREA STILLBIRTHS BY RACE/ETHNICITY N=118

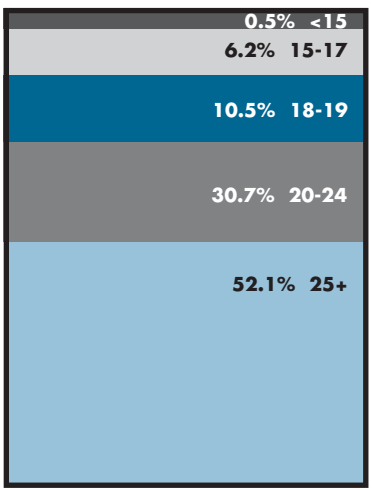


BY MATERNAL AGE

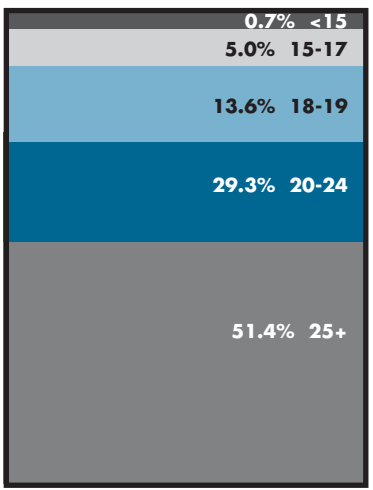
Of all 2003-2004 Milwaukee livebirths, 17.2% were to women under 20 years of age. 22% of MHBP Target Area stillbirths were to women under 20 years of age and 19.3% of City of Milwaukee stillbirths were to women under 20 years of age

The risk of stillbirth in the MHBP Target Area or in Milwaukee was not increased if the mother was under 20 years of age (rate determined by comparing livebirths to stillbirths).

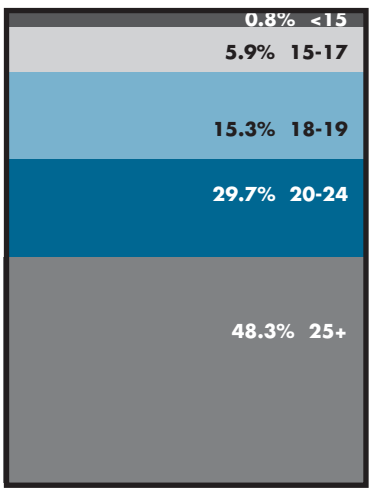
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MATERNAL AGE N=21982



2002-2004 CITY OF MILWAUKEE STILLBIRTHS BY MATERNAL AGE N=140



2002-2004 MHBP TARGET AREA STILLBIRTHS BY MATERNAL AGE N=118

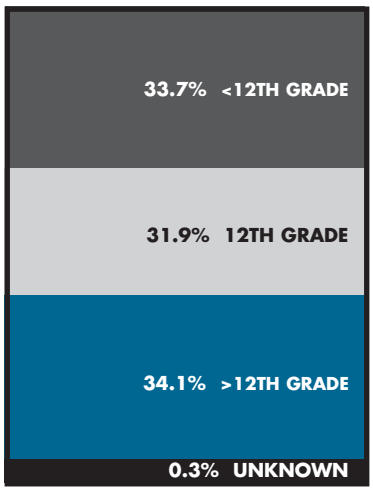


BY MATERNAL EDUCATION

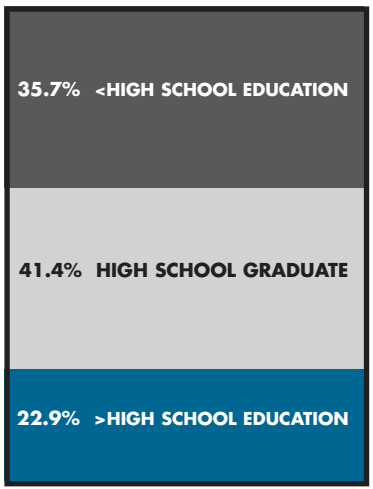
In 2003-2004 City of Milwaukee livebirths, 33.7% of livebirths were to women with less than 12 years of education. 39.8% of MHBP Target Area stillbirths were to women with less than 12 years of education and 35.7% of City of Milwaukee stillbirths were to women with less than 12 years of education

- Mothers who have some post-secondary education living in the MHBP Target Area were 3 times less likely to have a stillbirth than mothers with a 12th grade or less education. This is the same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to stillbirths).
- Education acts as a proxy for economic status and for the geographic area of resilience.[15]

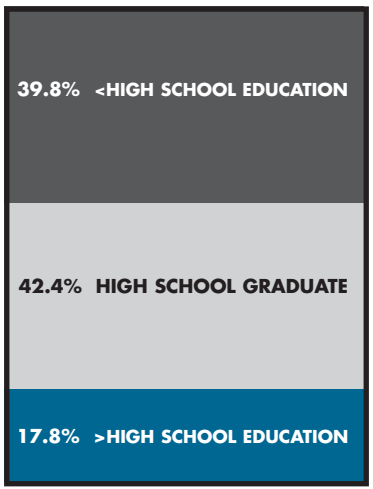
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MATERNAL EDUCATION N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTH BY MATERNAL EDUCATION N=140



2002-2004 MHBP TARGET AREA STILLBIRTH BY MATERNAL EDUCATION N=118



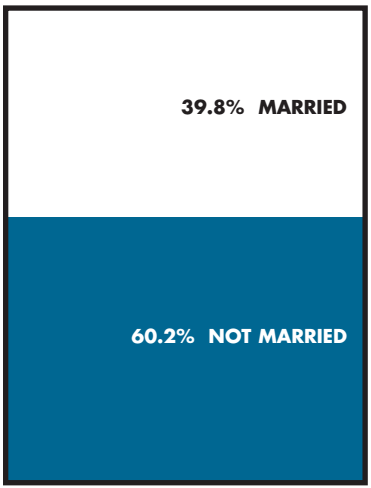
BY MARITAL STATUS

Of all 2003-2004 City of Milwaukee livebirths, 60.2% were to unmarried women. 80.5% of MHBP Target Area stillbirths and 75.7% of the City of Milwaukee stillbirths were to unmarried women.

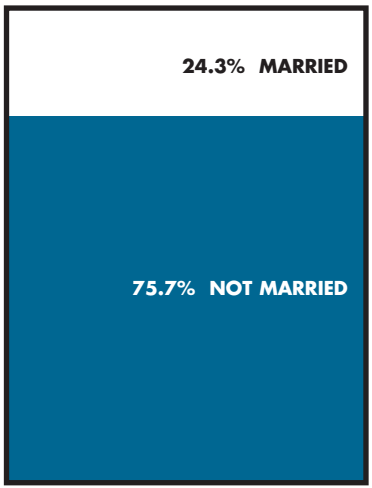
- Non-married parents in the MHBP Target Area were over 11/2 times times more likely to have a stillbirth than if the parents were married. In the City of Milwaukee, non-married parents were over 2 times more likely to have a stillbirth than if the parents were married (rate determined by comparing livebirths to stillbirths).

- In 2001, U.S. mean income for female-headed households with dependent children was $36,300, compared with $82,000 for married couple households with dependent children, according to data from the March 2002 Current Population Survey (CPS). In addition, 27 percent of households headed by unmarried women were poor (with incomes below the federal poverty level), and more than one-third were poor or near poor (with incomes less than 125 percent of the poverty level).[16]

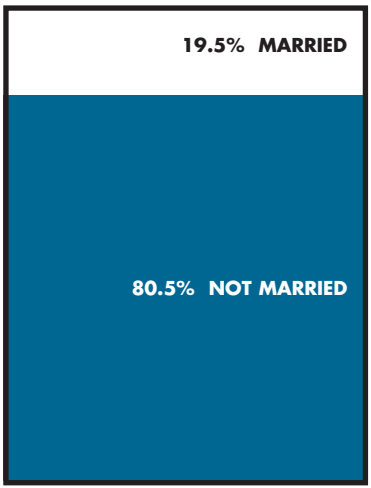
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY MARITAL STATUS N=21982



2003-2004 FIMR CITY OF MILWAUEE STILLBIRTHS BY MARITAL STATUS N=140



2003-2004 MHBP TARGET STILLBIRTHS BY MARITAL STATUS N=118

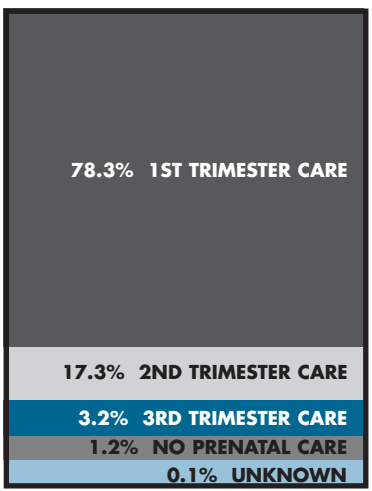


BY TRIMESTER OF CARE

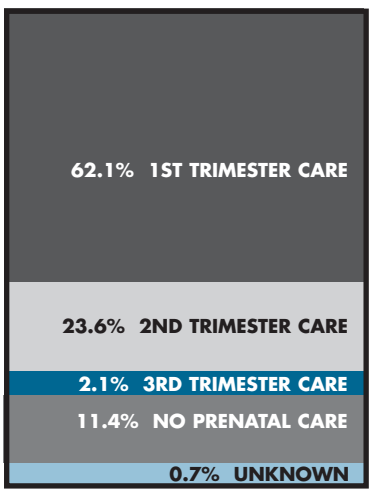
Of all 2003-2004 City of Milwaukee livebirths, 78.3% began their care in the 1st trimester, 17.3% in the 2nd trimester, 3.2% in the 3rd trimester, and 1.2% of mothers had no prenatal care. 58.5% of the mothers of 2003-2004 MHBP Target Area stillbirths began their care in the 1st trimester, 25.4% in the 2nd trimester and 2.5% in the 3rd trimester; and 12.7% had no prenatal care. In comparison, 62.1% of the mothers of 2003-2004 City of Milwaukee stillbirths began their care in the 1st trimester, 23.6% in the 2nd trimester and 2.1% in the 3rd trimester, and 11.4% had no prenatal care.

- Mothers in the MHBP Target Area who had no prenatal care were 12 times more likely to have a stillbirth than mothers who began their prenatal care in the 1st trimester. This was this same risk seen in the City of Milwaukee overall (rate determined by comparing livebirths to stillbirths).
- Over 20% of Wisconsin women who had no prenatal care in 2004 lived in Milwaukee.
- Over 20% of the women who had received no prenatal care in Wisconsin in 2004 lived in Milwaukee.

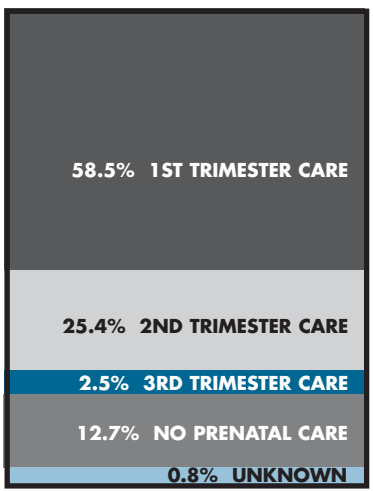
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY TRIMESTER OF CARE N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTHS BY TRIMESTER OF CARE N=140



2002-2004 MHBP TARGET AREA STILLBIRTHS BY TRIMESTER OF CARE N=118

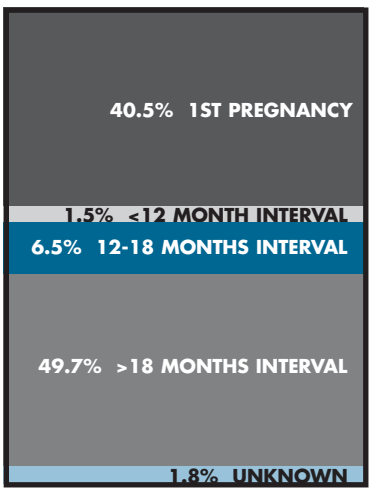


BY INTERVAL BETWEEN PREGNANCIES

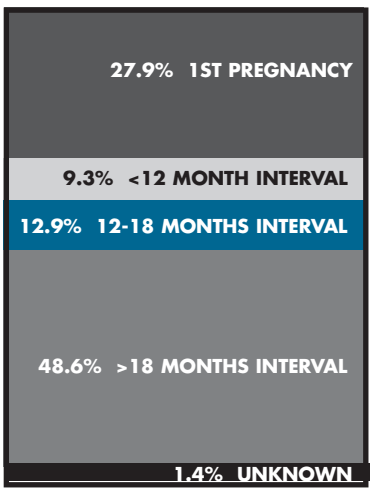
Of all 2003-2004 City of Milwaukee livebirths, 1.5% of mothers had less than a 12 month interval between this pregnancy and her last pregnancy, 6.5% had a 12-18 month interval. 9.3% of MHBP Target Area stillbirths were to women with less than a 12 month interval between this pregnancy and their last pregnancy; 13.6% had a 12-18 month interval. 9.3% of City of Milwaukee stillbirths were to women with less than a 12 month interval between this pregnancy and their last pregnancy; 12.9% had a 12-18 month interval.

- An interval of less than than 12 months between pregnancies in the MHBP Target Area increased the risk of stillbirth 4 times. In the City of Milwaukee, the risk was 7 times (rate determined by company livebirths to stillbirth).
- An interval of 12-18 months between pregnancies in the MHBP target area dropped this risk to 11/2 times. In the City of Milwaukee, the risk was 2 times (rates determined by comparing livebirths to stillbirths).
- An interpregnancy interval of 18 to 23 months is associated with the lowest risk for adverse perinatal outcomes.[29]
- Effects of poor birth-spacing persist even after other factors have been controlled, and are similar where a sibling was born during the two years preceding the birth of the child, regardless of the survival status of that sibling; however, mortality was higher when that sibling had died, due to increased familial risks of mortality. Rapid subsequent births also raise mortality for their earlier siblings.[30]

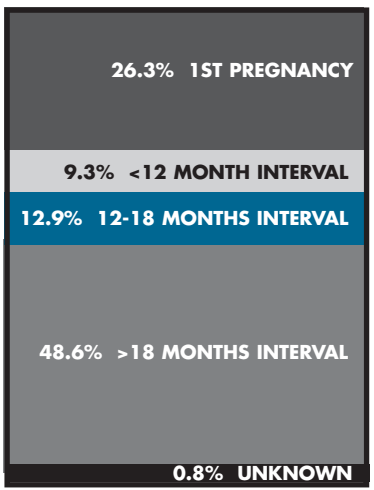
2003-2004 CITY OF MILWAUKEE LIVEBIRTHS BY PREGNANCY INTERVAL N=21982



2003-2004 CITY OF MILWAUKEE STILLBIRTH BY PREGNANCY INTERVAL N=140



2003-2004 MHBP TARGET AREA STILLBIRTH BY PREGNANCY INTERVAL N=118



STILLBIRTHS

This section looks at data derived from 2003-2004 fetal death (stillbirth) medical and social service record abstractions.

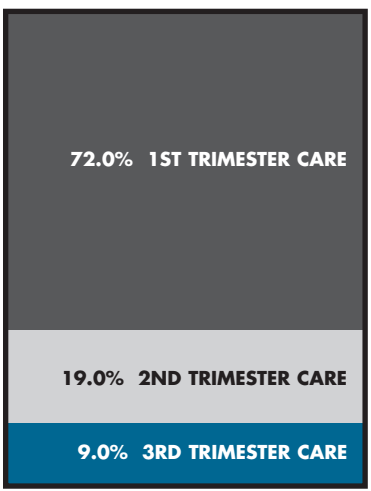
CITY OF MILWAUKEE PRENATAL CARE INITIATION BY RACE/ETHNICITY...

City of Milwaukee percentages for 1st trimester care were similar among City of Milwaukee White women and Hispanic women. However, only 57% of Black women began care in the 1st trimester. 11.4% of women who had experienced a stillbirth had NO prenatal care.

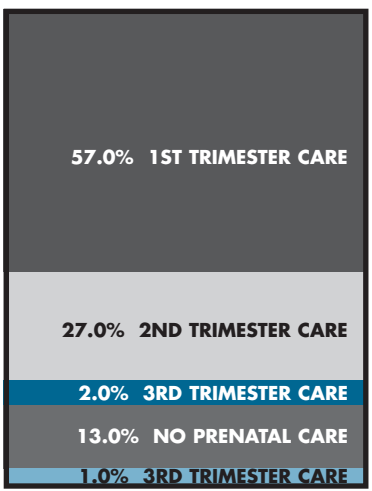
Of the 16 women who received no prenatal care

- 68.8% were Black.
- 25% were without insurance.
- 50% had significant AODA or mental health issues.

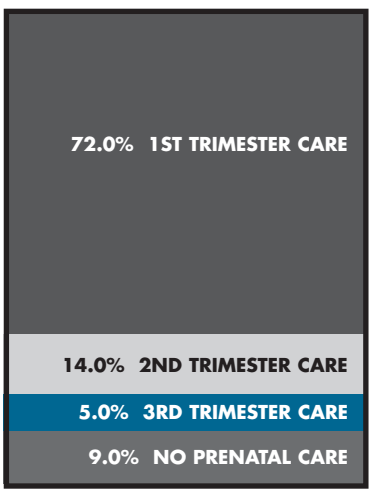
INITIATION OF CARE - WHITE WOMEN
2003-2004 CITY OF MILWAUKEE
STILLBIRTH DATA ANALYSIS N=32



INITIATION OF CARE - BLACK WOMEN
2003-2004 CITY OF MILWAUKEE
STILLBIRTH DATA ANALYSIS N=85



INITIATION OF CARE - HISPANIC WOMEN
2003-2004 CITY OF MILWAUKEE STILLBIRTH
DATA ANALYSIS N=22

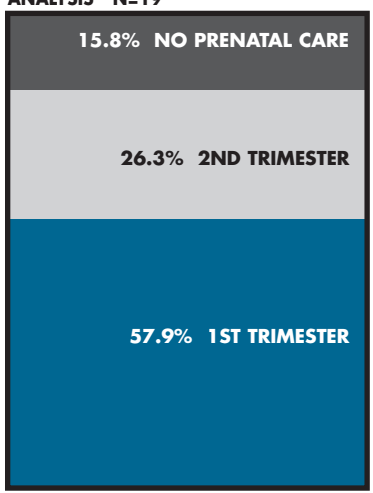


MHBP TARGET AREA PRENATAL CARE INITIATION BY RACE/ETHNICITY...

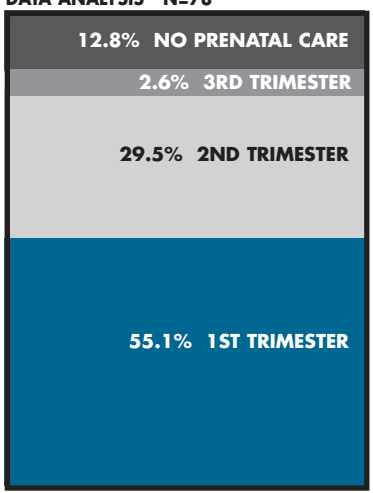
MHBP Target Area percentages for 1st trimester care were similar among White women and Black women; 68.4% of Hispanic women in the MHBP Target Area began their prenatal care in the 1st trimester. 13.2% of MHBP Target Area women who had experienced a stillbirth had NO prenatal care.

Of the 15 women in the MHBP Target Area who received no prenatal care
- 66.7% of them were Black.
- 26.7% of them were without insurance.
- 60% of them had significant AODA or mental health issues.

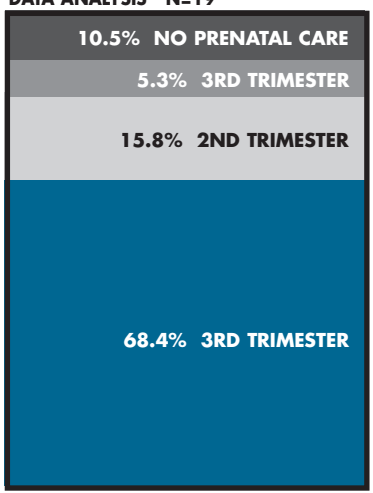
INITIATION OF CARE - WHITE WOMEN
2003-2004 MHBP TARGET AREA STILLBIRTH
ANALYSIS N=19



INITIATION OF CARE - BLACK WOMEN
2003-2004 MHBP TARGET AREA STILLBIRTH
DATA ANALYSIS N=78



INITIATION OF CARE - HISPANIC WOMEN
2003-2004 MHBP TARGET AREA STILLBIRTH
DATA ANALYSIS N=19

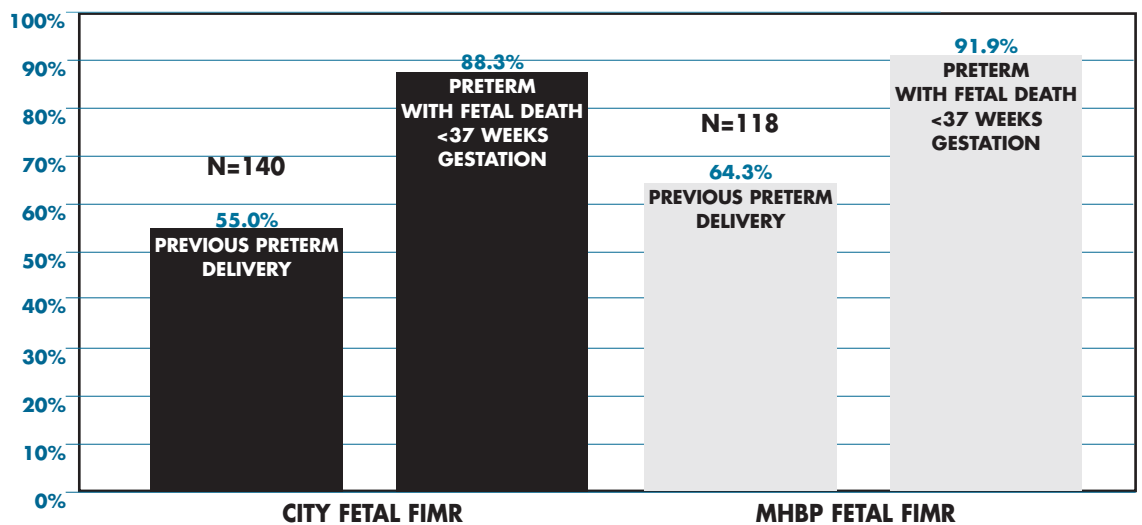


PREVIOUS PREGNANCY ISSUES...

64.3% of MHBP mothers who had a stillborn infant, had a history of a previous preterm birth (<37 weeks gestation) whether by miscarriage, stillbirth or an elective loss. This was the 2nd preterm birth for nearly all (91.9%) of these mothers. 55% of City of Milwaukee mothers who had a stillborn infant, had a history of a previous preterm birth by miscarriage, stillbirth or an elective loss. This was the 2nd preterm birth for 88.3% of these mothers.

As stated in the infant death section: "A previous poor pregnancy outcome should be considered a paramount reason to get early and well managed prenatal care with any subsequent pregnancies. Ideally, such care should begin right after the loss or poor outcome and contact should be maintained through to the next delivery."
F. Broekhuizen, MD FIMR Case Review Team member

PREVIOUS PREGNANCY ISSUES FOR 2003-2004 CITY OF MILWAUKEE /MHBP TARGET AREA STILLBIRTHS



PRENATAL INFECTION AND PRETERM BIRTH...

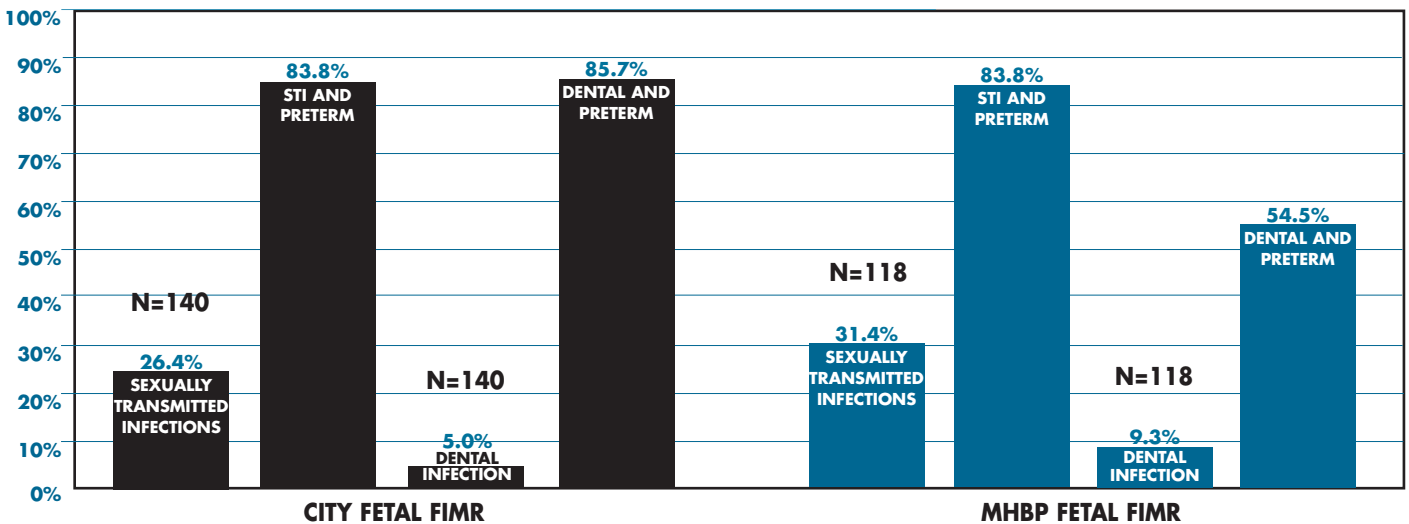
A diagnosed sexually transmitted infection was identified in 31.4% of the MHBP mothers of these stillborn infants. 83.8% of these women experienced preterm labor. Dental infections were seen in 9.3% of the MHBP mothers of these stillborn infants. 4.5% of these women experienced preterm labor.

26.4% of City of Milwaukee mothers of stillborn infants had a sexually transmitted infection and 83.8% of them experienced preterm labor. 5% of City of Milwaukee mothers of stillborn infants had a dental infection and 85.7% experienced preterm labor.

"There is compelling evidence that a link exists between preterm/low birth weight (PLBW) and periodontitis. Although 25% to 50% of PLBW deliveries occur without any known aetiology, there is increasing evidence that infection may play a significant role in pre-term delivery. A model explaining the plausible relationship is proposed based upon the concept of infection leading to a cascade of inflammatory reactions associated with pre-term labour and periodontal disease. Current evidence has pointed to an interest in dental intervention studies to control periodontal disease as one of the potential strategies to reduce pre-term labour."[17]

Sexually transmitted infections can lead to many maternal complications, such as premature rupture of the fetal membranes, infection of the membranes surrounding the fetus, premature labor and delivery, postdelivery infection of the uterus, and postpartum infant complications. STI's also increase the risk of a subsequent preterm birth.[18]

PRENATAL INFECTIONS AND PRETERM BIRTH FOR 2003-2004 CITY OF MILWAUKEE/MHBP TARGET AREA STILLBIRTHS

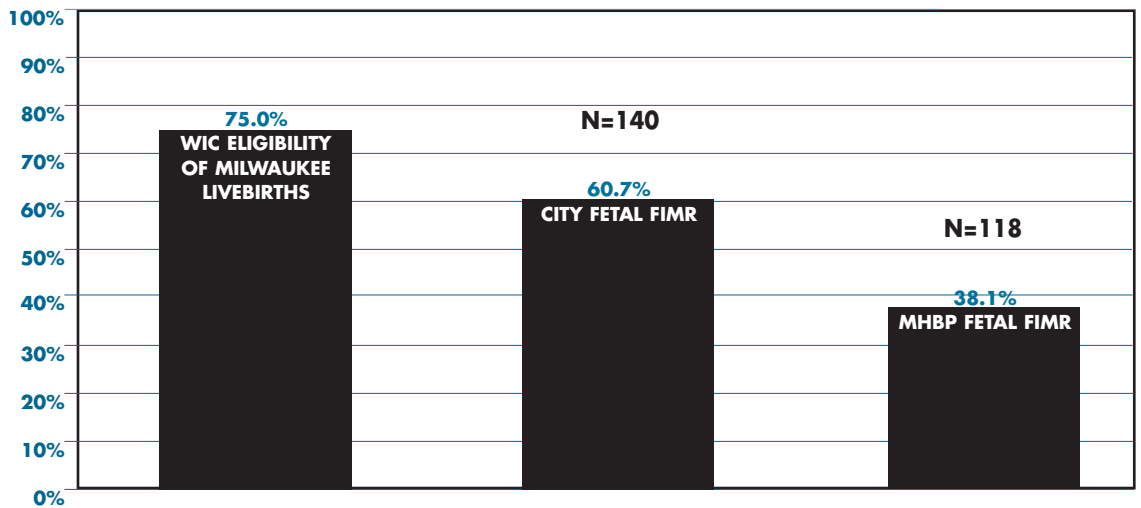


PRENATAL WIC USE...

Only 38.1% of MHBP mothers of these stillborn infants were prenatally enrolled in the Women, Infants and Children (WIC) Supplemental Nutrition Programs. In comparison, nearly twice as many (60.7%) of all FIMR mothers of stillborn infants were enrolled in WIC prenatally. Income data is needed to determine WIC eligibility and this was not available. Over 75% of mothers giving birth in Milwaukee County in 2000 were eligible to receive WIC.[19]

The reasons given for not enrolling in the WIC program include lack of access to transportation, WIC office hours conflicting with work hours, a fear of enrolling in government programs, an unwillingness to participate and lack of a referral from physicians, clinics or hospital staff. Many mothers who received WIC with their last pregnancy do not take advantage of the program with a subsequent pregnancy. WIC is also available to all post-partum women for six (6) months, even if their child died in the hospital.

PRENATAL WIC UTILIZATION FOR 2003-2004 CITY OF MILWAUKEE/MHBP TARGET AREA STILLBIRTHS



SUBSTANCE USE DURING PREGNANCY...

33.9% of MHBP mothers of stillborn infants and 30.7% of City of Milwaukee mothers of stillborn infants smoked during their pregnancy. The 2003-2004 city-wide percentage of mothers who smoked during their pregnancy was 12.2%.

- "Nicotine, an ingredient in cigarettes, causes blood vessels to narrow, thereby decreasing the amount of oxygen the fetus can receive. Research shows a positive association between physical defects among newborns and maternal smoking during pregnancy. Preterm delivery, low-weight full-term babies and fetal and infant death all occur more frequently among mothers who smoke during pregnancy than among those who do not."[20]

17.8% of MHBP mothers of stillborn infants and 12.9% of City of Milwaukee mothers of these stillborn infants used alcohol during their pregnancy. The 2003-2004 city wide percentage of mothers reporting alcohol use during pregnancy was 1.1%.

- "Consuming alcohol during pregnancy increases the risk of miscarriage, low birthweight and stillbirth. Heavy drinkers are two to four times more likely to have a miscarriage between the fourth and sixth months of pregnancy than are nondrinkers. A recent Danish study found that women who drank five or more drinks a week were three times more likely to have a stillborn baby than women who had fewer than one drink a week."[9]

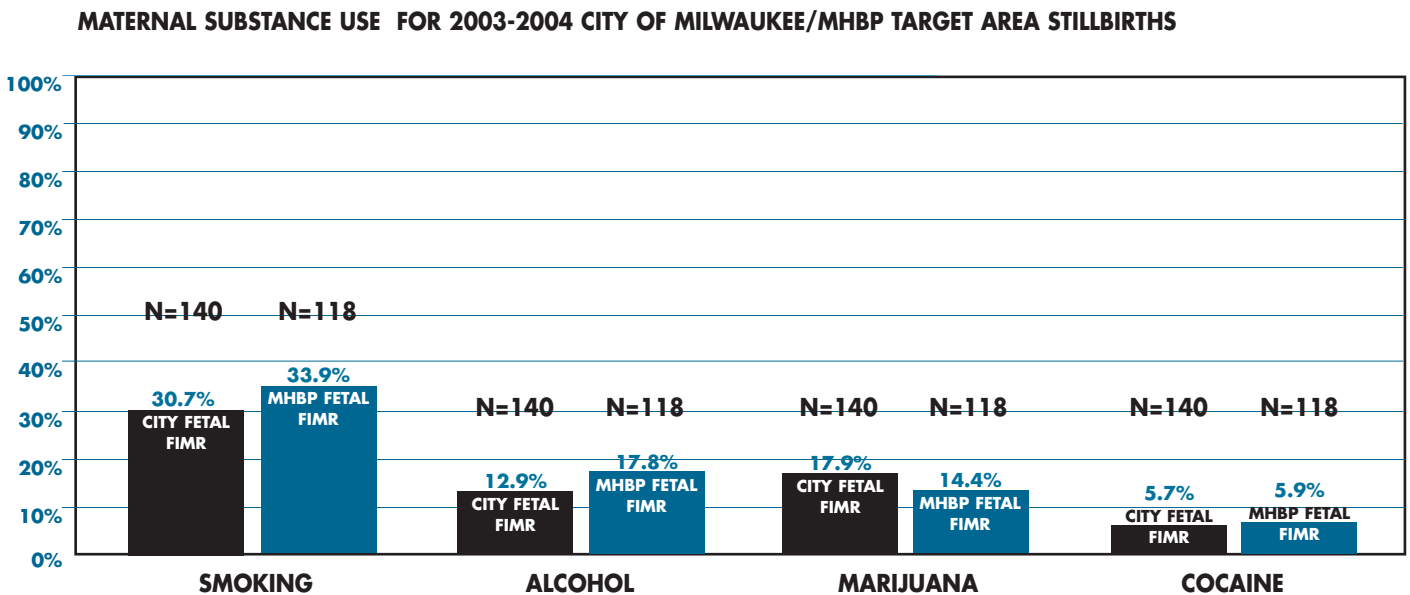
14.4% of MHBP mothers of stillborn infants and 17.9% of City of Milwaukee mothers of these stillborn infants used marijuana during their pregnancy.

- "Marijuana consumption by pregnant women when combined with malnourishment and inadequate prenatal care may increase the chances of negative fetal consequences. Marijuana use has been linked to miscarriage, stillbirth and low birth weight."[20]

5.9% of MHBP mothers of stillborn infants and 5.7% of City of Milwaukee mothers of these stillborn infants used cocaine during their pregnancy.

- "Cocaine use often results in a pattern of risk not only related to polydrug use, but to increased risk of sexually transmitted infections, of undernutrition, of violence, and of lack of prenatal care. Epidemiologic evidence is strongest for the association of cocaine use and abruption of the placenta. Various studies have placed the risk for aburption in cocaine users at around 10-19%. Abruption can result in intrauterine death."[31]

SUBSTANCE USE DURING PREGNANCY...



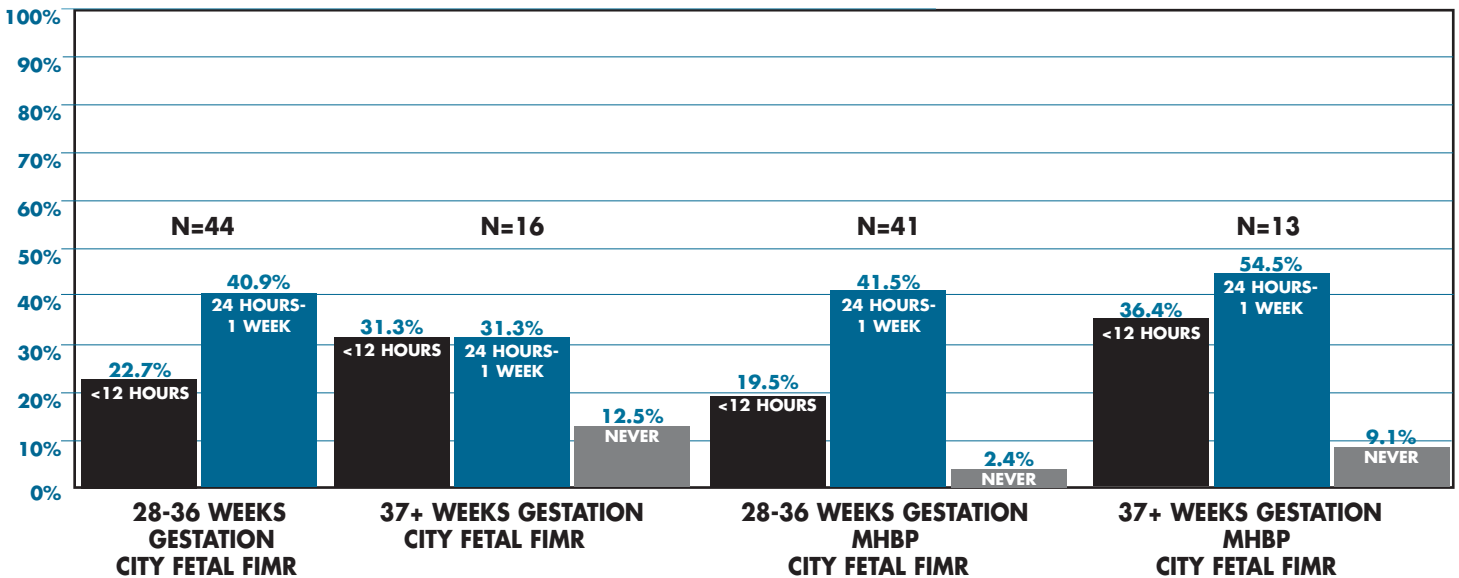
FETAL MOVEMENT

It is a myth that babies stop moving right before they are born. Babies have less room to move around but they should be moving right up to the time they are born.

67% of all MHBP stillbirths occurred after 28 weeks gestation. 41.5% of the mothers of 28-36 week gestation stillbirths, and 54.5% of the mothers of 37+ week gestation stillbirths, had not felt any fetal movement for at least 24 hours before they called their healthcare provider or came to the hospital. By this time the baby had died in utero. 9.1% of the mothers of 37+ week gestation stillbirths had NEVER felt any movement.

62.8% of all City of Milwaukee stillbirths occurred after 28 weeks gestation. 40.9% of the mothers of 28-36 week gestation stillbirths, and 31.3% of the mothers of 37+ week gestation stillbirths, had not felt any fetal movement for at least 24 hours before they called their healthcare provider or came to the hospital. By this time the baby had died in utero. 12.5% of the mothers of 37+ week gestation stillbirths had NEVER felt any movement.

ABSENCE OF FETAL MOVEMENT FOR 2003-2004 CITY OF MILWAUKEE/MHBP TARGET AREA STILLBIRTHS



AUTOPSIES AND MEDICAL FOLLOW-UP

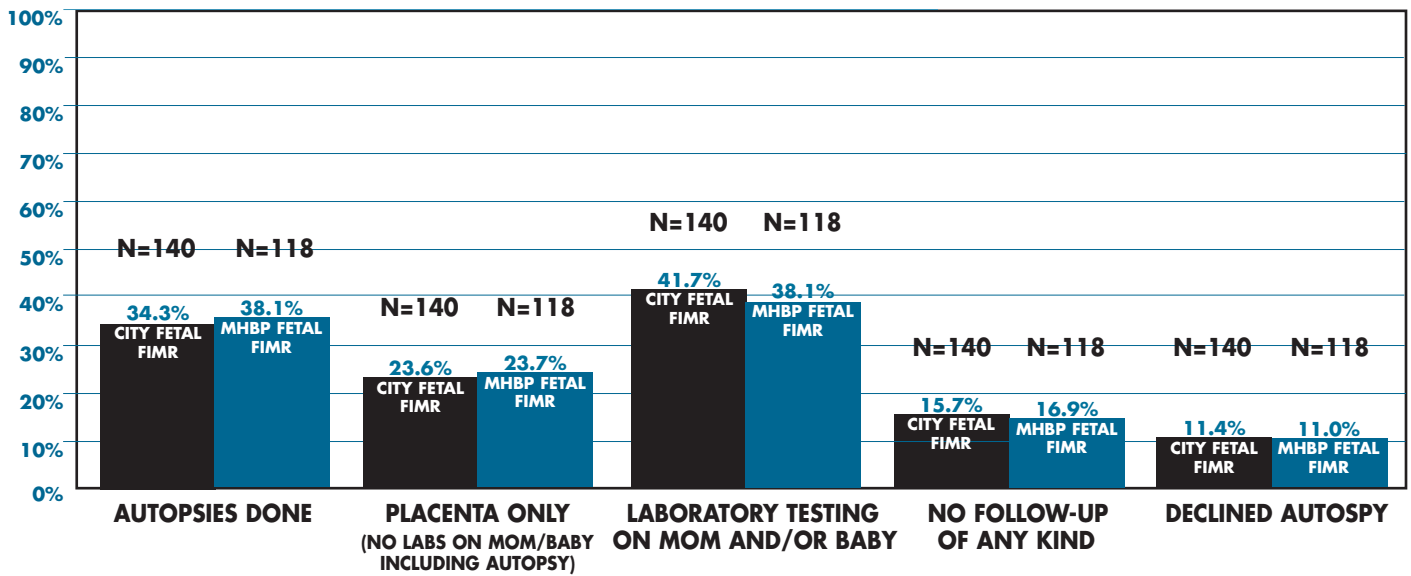
38.1% of MHBP stillbirths had fetal autopsies performed. Only the placenta was analyzed in 23.7% of stillbirths. Follow-up laboratory testing on mom or baby or both was done in 38.1% of these stillbirth cases. 16.9% of these stillbirths had no followup of any kind.

34.3% of City of Milwaukee stillbirths had fetal autopsies performed. Only the placenta was analyzed in 23.6% of stillbirths. Follow-up laboratory testing on mom or baby or both was done in 41.7% of these stillbirth cases. 15.7% of these stillbirths had no followup of any kind.

"The perinatal postmortem examination remains an indispensable part of clinical management. It can aid in the identification of inheritable diseases and provide information for accurate parental counselling"[32]

The potential benefits of stillbirth assessment are to let the parents know why a baby was stillborn; to find a diagnosis may affect subsequent parental reproductive decisions, to potentially decrease inappropriate litigation, and to serve as a means of providing a foundation for the assessment of quality prenatal and perinatal care."[33]

AUTOPSIES AND MEDICAL FOLLOW-UP FOR 2003-2004 CITY OF MILWAUKEE / MHBP TARGET AREA STILLBIRTH

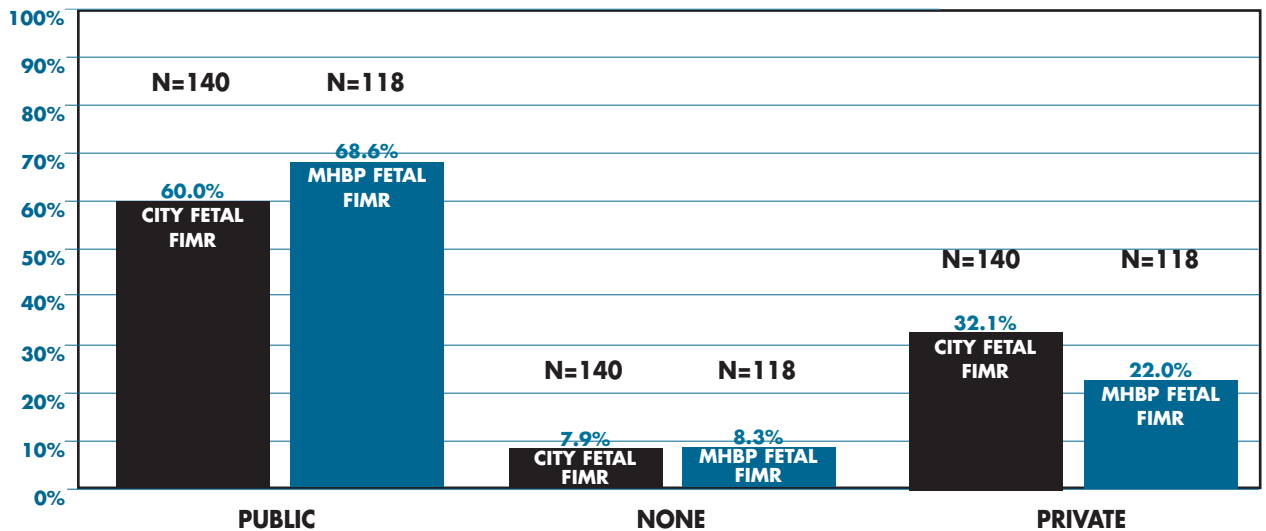


INSURANCE COVERAGE...

68.6% of MHBP mothers of stillborn infants were covered by public insurance. 9.3% of the mothers had NO insurance. 60% of City of Milwaukee mothers of stillborn infants were covered by public insurance. 7.9% of the mothers had NO insurance.

- The Bureau of Health Information and Policy, State of Wisconsin 2004 Wisconsin Health Insurance Coverage report found that 81% of adults in the State had private or employer sponsored insurance. 11% of adults were covered by public insurance and 8% had essentially no insurance.[24]

INSURANCE COVERAGE FOR 2003-2004 CITY OF MILWAUKEE / MHBP TARGET AREA STILLBIRTHS



EMOTIONAL WELLNESS AND SUPPORT ISSUES...

The following common themes are reported by mothers of stillborn infants:

1.7% of MHBP mothers of stillborn infants and 1.4% of City of Milwaukee mothers of stillborn infants were homeless.

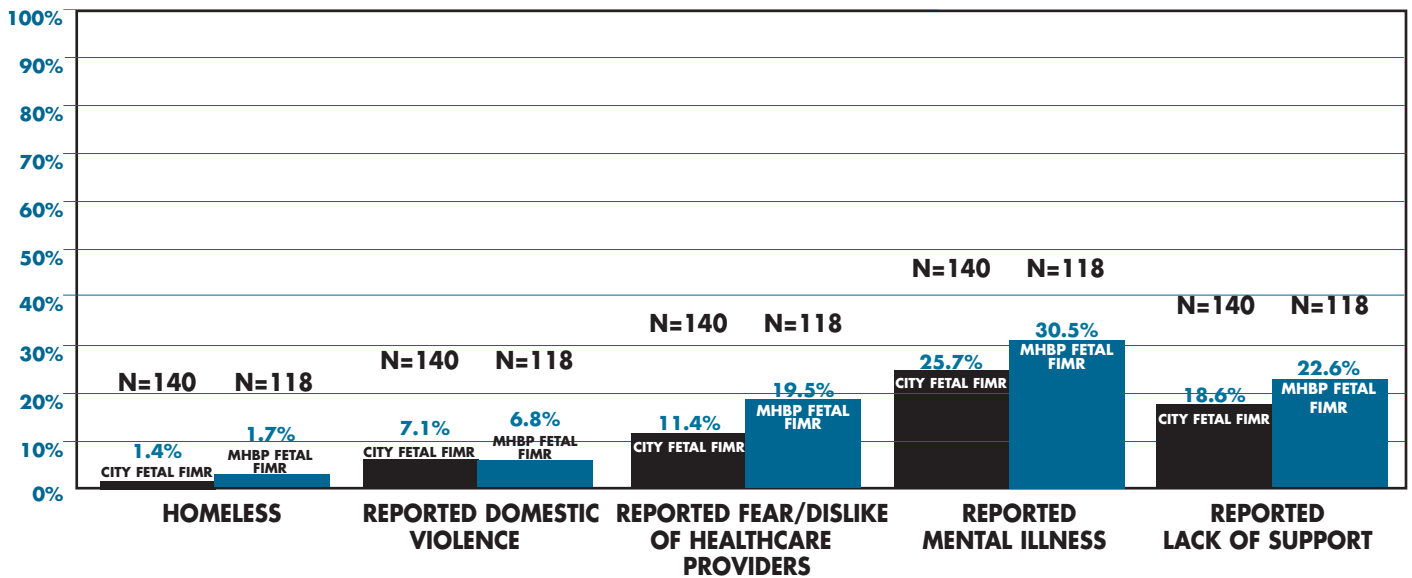
6.8% of MHBP mothers of stillborn infants and 7.1% of City of Milwaukee mothers of stillborn infants reported that they had been physically or emotionally abused.

19.5% of MHBP mothers of stillborn infants and 11.4% of City of Milwaukee mothers of stillborn infants reported that they were angry or fearful about the care they received from healthcare providers. This is by self-report.

30.5% of MHBP mothers of stillborn infants and 25.7% of City of Milwaukee mothers of stillborn infants had either a self-reported or documented mental health problem during their pregnancy.

22.6% of MHBP mothers of stillborn infants and 18.6% of City of Milwaukee mothers of stillborn infants reported that they had an inadequate or non-existent support system during their pregnancy.

WELLNESS AND SUPPORT ISSUES FOR 2003-2004 CITY OF MILWAUKEE / MHBP TARGET AREA STILLBIRTHS



WHAT IS BEING DONE TO DECREASE THE NUMBER OF FETAL AND INFANT DEATHS IN MILWAUKEE AND ELIMINATE RACIAL AND ETHNIC DISPARITIES IN INFANT MORTALITY?

In 2003, after the publication of the 2000-2001 FIMR report, Covenant Healthcare System, the Infant Death Center of Wisconsin and the City of Milwaukee Health Department formed the Health Care Administrator Fetal Infant Mortality Group. All Milwaukee hospital systems are part of this group which acknowledges that all participants can contribute in a non-competitive arena to effect change, benefiting the mothers and babies we care for. This group has:

- identified problems getting pediatric appointments for newly discharged infants due to providers refusal to schedule appointments until the infant has his/her own insurance card. The group has worked with the City of Milwaukee Health Department's Medical Assistance Outreach to — -ensure that infants can receive care as soon as they are discharged from the hospital.
- developed a smoking subgroup to address the issue of infants and young children being exposed to second hand smoke. They are working with the Center for Tobacco Research and Intervention to increase effective referral and utilization of the Quit Line and Fax to Quit program.
- worked with the City of Milwaukee Health Department Medical Assistance Outreach Program in seeking resolution of the problem of access, especially for undocumented women. Funding for some care was part of the 2006 State of Wisconsin budget.

What are some of the things that individual Milwaukee healthcare systems have done?

Aurora Health Care

- initiated educational programming for staff to assist them in understanding and implementing the Back to Sleep recommendations and importance of modeling behavior for parents.
- developed a smoking champion for every shift that will reinforce smoking cessation concepts and the consequences of second-hand smoke.
- brought together various components of the Aurora system to assure a consistent message is being given to families by all components of the system.
- has a safe crib on display on the birthing unit.

Children's Hospital of Wisconsin

- instituted an infant safe sleep policy.
- assessed internal policies regarding family visitation after identifying that falls are 2x more likely to occur in 50% of all families with children less than 12 months old where bed-sharing occurs. They have reported the information to the Patient Safety educators for family education.

Columbia/St. Mary's

- convened a task force to share FIMR data and plan and implement program enhancements.
- instituted educational programming for nurses on all units and continually reinforced the Back to Sleep message with a focus on exposure to second hand smoke and safe sleep environment.
- added questions to their telephone call backs to patients on safe sleep position, safe sleep environment, post-partum depression and exposure to second hand smoke.
- involved pediatricians and lactation consultants in meetings with managers and in-house staff to discuss safe sleep environment and smoking.
- held a community grand rounds.
- funded purchase of infant onesies with the safe sleep message to be given to all their newborns.

Wheaton Franciscan Health Care

- presented Back to Sleep education pre- and postnatally to families.
- initiated a policy in which infants will be placed on their backs to sleep.
- worked with their foundation and auxiliary to initiate a crib program for their patients. Their Auxiliary also assures that families know how to set up crib and staff call back families to see if they are using the cribs.
- provides information on safe sleep position and environment to families.
- developed a high risk obstetrical clinic following review of FIMR data.
- has a safe crib on display on the unit at St. Joseph's Regional Medical Center

Froedtert Hospital

- distributed "Getting Ready for Baby" flyers to all pregnant women using their clinics.
- is developing a prenatal care coordination program.
- incorporated education on safe sleep, post-partum blues/depression and breastfeeding at discharge.
- placed Safe Sleep posters in all of its mother-baby unit rooms and is creating a Safe Sleep policy for the hospital.
- provides smoking cessation, depression and breastfeeding information prior to discharge.
- developed a resource area available to both patients and guests on Safe Sleep and smoking cessation.

City of Milwaukee Health Department

- created and distributed pamphlets to be used in the community to teach about safe sleep.
- created and distributed Safe Sleep posters.
- conducted grand rounds at each system to increase awareness of infant mortality issues.
- shared FIMR information with individual hospitals.

- improved pregnancy testing availability.
- created a subgroup to discuss smoking issues on the units.
- donates a Safe Sleep crib for hospitals to use while teaching Safe Sleep.
- collaborates with task forces at hospitals addressing FIMR issues.

Managed Health Services

- identifies and enrolls High Risk Pregnant women and families in face-to-face Comprehensive Case Management to assure that their medical and social service needs are met.
- screens women for depression prenatally, postpartum, and refers to and collaborates with Mental Health providers.
- screens for dental needs and refers to dental providers.
- provides education on smoking and provides smoking cessation counseling.
- visits our members after delivery in Milwaukee County and provides information on benefits, Back to Sleep, Shaken Baby, birth spacing, newborn care, immunizations, Health Check, WIC, etc.

Milwaukee Healthy Beginnings Project

The Milwaukee Healthy Beginnings Project (MHBP) promotes access to necessary perinatal/infant health services for women, their infants and families. MHBP seeks to give a child a healthy start by providing access to services that are community driven, increasing early prenatal care for pregnant women, providing culturally competent and family centered care, promoting public awareness of infant mortality and its contributing factors, and integrating the populations served in the decision making process. Of special interest to the project are the challenges faced by incarcerated women in receiving perinatal services and upon release. MHBP seeks to provide a unifying infrastructure as it subcontracts with five agencies to address the perinatal needs of women, infants and families, including St. Joseph Regional Medical Center, Milwaukee Health Services, ASHA Family Services, Healthcare for the Homeless of Milwaukee and the City of Milwaukee Health Department.

State of Wisconsin

The Division of Public Health, leading efforts within the Department of Health and Family Services, has joined with other partners throughout the state to raise awareness of the racial and ethnic disparities in Wisconsin's infant mortality and birth outcomes. The Department, together with partners, will strengthen its efforts by implementing a five-year plan, focusing on the following:

- Communication and Outreach: Promoting statewide awareness of racial and ethnic disparities in birth outcomes and maintaining ongoing communication and outreach.
- Quality Improvement: Developing and coordinating quality improvement processes for the Department's programs and services.
- Community and Evidence-Based Practices: Deploying community and evidence-based practices in counties with the highest disparities.
- Data: Monitoring statewide and local trends in low birthweight, prematurity, and Sudden Infant Death Syndrome (SIDS); and evaluating the effectiveness of interventions.

WHAT CAN YOU DO?

Health Care Systems and Providers can

- investigate the relationship of social factors to disease.
- identify the barriers to providing appropriate health care to underserved and/or inadequately served populations.
- adopt policies that promote cultural awareness and sensitivity.
- listen to the voices of the people and enable them to share in their healthcare decisions.
- educate themselves and their staff on the facts of infant death and stillbirth and prevention recommendations.

Government can

- invest in communities.
- invest in healthcare for underserved populations.
- recognize that for some things quality costs.
- recognize that even though all may be created equal, they are not all treated equally.

The Media can

- raise awareness.
- facilitate communication between all levels of society.

FIMR WOULD LIKE TO ESPECIALLY THANK THE MEMBERS OF THE CASE REVIEW TEAM FOR THEIR COMMITMENT TO THE FIMR PROJECT, FOR REVIEWING THIS DATA, AND FOR THEIR EFFORTS IN BRINGING FIMR RECOMMENDATIONS TO THE COMMUNITY.

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Ann Conway, RN, MPH	Executive Director, Wisconsin Association for Perinatal Care
Dwight Cruikshank, MD	Chairman, Department of Obstetrics and Gynecology, Medical College of Wisconsin
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Capri-Mara Fillmore, MD, MPH	Associate Medical Director, City of Milwaukee Health Department
Ralph Franciosi, MD	Medical Director, Infant Death Center of Wisconsin, Children's Hospital of Wisconsin
Barb Gesme, RN	Director, Perinatal Assessment Center, Columbia-St. Mary's Hospital
Carrol Glodowski, RN	Parish Nurse, Covenant Health Care System
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Carol Wilson, RN, CNM	Midwife, Aurora Sinai Medical Center
Sandra Wolf, RN, MSN	Bereavement Coordinator, Froedtert Memorial Lutheran Hospital
Theresa Ziemba, RN	Family Birth Center Nurse Educator, Covenant Health Care System

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Patricia McManus, RN, PhD	Executive Director, Black Health Coalition, Milwaukee Healthy Beginnings Project Director
Rachel Morgan, RN	Milwaukee Healthy Beginnings Project Program Coordinator

Supporting Institutions

Aurora Sinai Medical Center
Children's Hospital of Wisconsin
Center for Urban Population Health
Columbia-St. Mary's Hospital
Froedtert Memorial Lutheran Hospital
Medical College of Wisconsin
Milwaukee County Medical Examiner
St. Joseph Regional Medical Center
State of Wisconsin, Division of Public Health
Waukesha Memorial Hospital
Bureau of Milwaukee Child Welfare
City of Milwaukee Health Department
Community Memorial Hospital, Menomonee Falls
Infant Death Center of Wisconsin
Managed Health Services
St. Francis Hospital
St. Michael's Hospital
United Health Care
State of Wisconsin-Bureau of Health Information
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It is recognized that there remain many areas of concern which have not been addressed in this report. These include, but are not limited to, insurance inequities, issues of medical errors, the quality of system and individual provider care, and a multi-system response to issues of poverty and race. We encourage the individuals, providers, community agencies and healthcare systems reading this report to develop or design a program based on one or more of the FIMR recommendations. The FIMR project encourages a community wide response to this problem and would be pleased to work with groups willing to sponsor these initiatives.

BIBLIOGRAPHY

[1] K. Kvale et al. "Trends in Maternal and Child Health Outcomes: Where Does Wisconsin Rank in the National Context?" in Wisconsin Medical Journal 2004, Vol 103(5): 42-47.

[2] Big Cities Health Inventory, 2003, National Association of County and City Health Officials, Benbow, N., editor. Washington, D.C. 2003.

[3] US Census Bureau: 2004 American Community Survey

[4] The Anne E. Casey Foundation: Kids Count: City and Rural Kids Count Data Book, 2004
http://www.aecf.org/cgi-bin/rs2005.cgi?action=profile&area=Milwaukee%2c+wi

[5] US CENSUS International Database, for countries with poulations greater than 250,000 at
www.photius.com/rankings/population/infant_mortality_rate_2004_0.html

[6] http://www.wjla.com/headlines/0905/259002.html

[7] www.kidshealth.org/parent/pregnancy_newborn/pregnancy/medical_care_pregnancy.html

[8] www.perinatalweb.org

[9] www.modimes.org

[10] www.ctri.wisc.edu

[11] www.wisc.edu/wissp/protocol.htm

[12] http://aappolicy.aappublications.org/

[13] www.idcw.org

[14] A Geronimus. "On Teenage Childbearing and Neonatal Mortality in the United States." Population and Development Review: Vol 13(2), Jun 1987, pp245-279.

[15] Demography, Vol. 35, No. 1 (Feb., 1998), pp. 71-81

[16] http://www.urban.org/UploadedPDF/410933_single_moms_retirement.pdf

[17] K Yeo et al. Ann Acad Med Singapore. 2005 Jan; 34(1): 111-6.

[18] W W Andrews et al. "The Preterm Prediction Study: association of second-trimester genitourinary chlamydia infection with subsequent spontaneous preterm birth." Am J Obstet Gynecol. 2000 Sep;183(3):662-8.

[19] State of Wisconisn 2000 WIC data.

[20] http://www.thedailystar.com/news/stories/2000/05/16/helcol.html

[21] S Iyasu et al. "Risk Factors for Sudden Infant Death Syndrome among Northern Plains Indians." JAMA 2002;288: 2717-2723.

[22] http://www.med.umich.edu/1libr/pa/pa_marijuan_hhg.htm.

[23] http://www.wisc.edu/wissp/wisspers/dec97001.htm

[24] www.dhfs.wisconsin.gov/stats/pdf/fhs04ins/pdf

[25] AAP statement on bed-sharing at www.aap.org

[26] CPSC statement on bed-sharing at www.cpsc.org

[27] http://www.stillbirthalliance.org/home.cfm

[28] http://www.sidsalliance.org/conf2005/library/Huthen%20Varli%20Handout.pdf

[29] Am J Obstet Gynecol. 2001 Dec;185(6):1403-10.

[30] http://taylorandfrancis.metapress.com/(x0yblu2xma4qvsuasvvjdt31)/app/home/contribution.asp?referrer=parent&backto=issue,2,13;journal,64,66;linkingpublicationresults,1:300383,1

[31] http://www.wisc.edu/wissp/wisspers/dec97001.htm

[32] OG Killeen et al. "The Value of the Perinatal and Neonatal Autopsy." Ir Med J 2004 Nov-Dec:97(10):319.

[33] http://www.wisc.edu/wissp/wisspers/wspers4.htm

2003 U.S birth data at www.cdc.gov

2002-2004 State of Wisconsin birth data at www.wisconsin.gov

Healthy Babies: Efforts to Improve Birth Outcomes and Reduce High Risk Births. Released by the NGA Center for Best Practices, June 2004 at http://www.nga.org/portal/site/nga/menuitem.50aeae5ff70b817ae8ebb856a11010a0/

Listening to Mothers: Report of the First National U.S. Survey of Women's Childbearing Experiences. Recommendations issued by the Maternity Center Association, October 2002 at http://www.childbirthconnection.org/

Brighter Futures: Wisconsin's plan to reduce adolescent pregnancy at www.dhfs.state.wi.us/newsinitiatives/index.htm

D. Byrd et al. "Reducing Black Infant Mortality in Wisconsin: Best Practices and Model Programs." Wisconsin Public Health and Health Policy Issue Brief, July 2005, Vol 6(3).

E Hutchins et al. "FIMR and Other Mortality Reviews as Public Health Tools for Strengthening Maternal and Child Health Systems in Communities: Where Do We Need To Go Next?" Maternal Child Health Journal December 2004, Vol 8(4):259-268.

C Jones. "Levels of Racism: A Theoretical Framework and a Gardener's Tale." in Am J Pub Health August 2000, Vol 90(8):1212-1215.

A Koontz et al. "The Evolution of Fetal and Infant Mortality Review as a Public Health Strategy." Maternal Child Health Journal December 2004, Vol 8(4):195-203.

K McDonnell et al. "Comparison of FIMR Programs with Other Perinatal Systems Initiatives." Maternal Child Health Journal December 2004, Vol 8(4):231-238.

D. Misra et al. "The Nationwide Evaluation of Fetal and Infant Mortality Review (FIMR) Programs: Development and Implementation of Recommendations and Conduct of Essential Maternal and Child Health Services by FIMR Programs." Maternal Child Health Journal December 2004, Vol 8(4):217-229.